

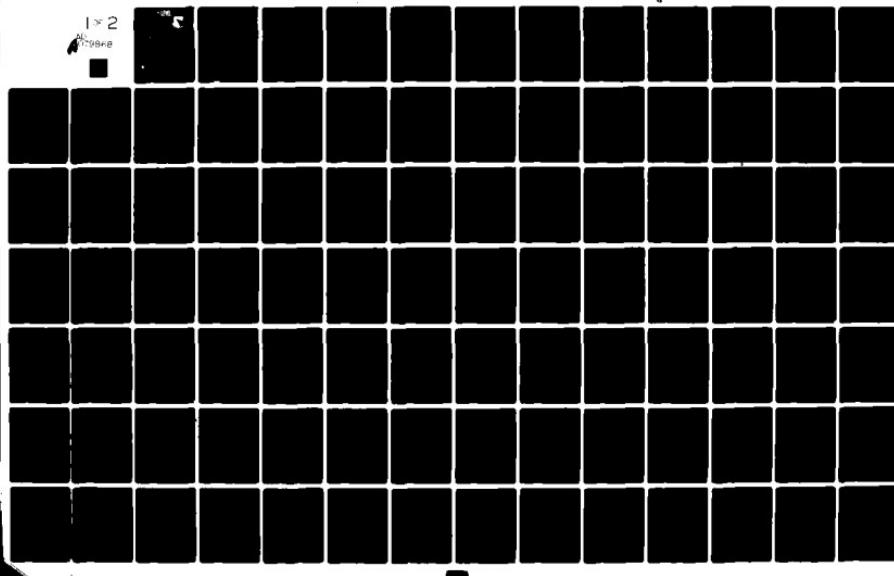
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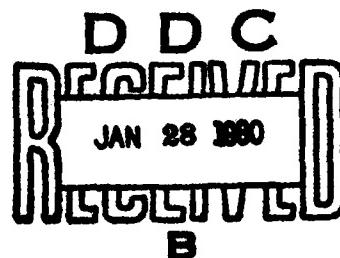
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Volume 128



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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK
Volume 128
T-38 Aircraft In The AF32A-18 Noise Suppressor,
Near And Far-Field Noise

JULY 1979



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AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER



**HENNING E. VON GIERKE
Director
Biodynamics and Bioengineering Division
Aerospace Medical Research Laboratory**

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The AF32A-18 noise suppressor is made by General Acoustics Corporation for acoustical suppression of the T-38 aircraft. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating in this suppressor for five engine power configurations. Near-field data are reported for four locations in a wide variety of physical and psychoacoustic measures: overall and			

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band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

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PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 7231C, Technology to Define and Assess Environmental Quality of Noise From Air Force Operations.

The author gratefully acknowledges Mr. John Cole and Mr. Robert Powell for their assistance in preparing this report, Mr. Jerry Speakman and Capt Richard Gorman for their assistance in acquiring the raw data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing, and Mrs. Peggy Massie for assistance in typing this report.

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INTRODUCTION

The T-38A is a twin-engine, double-seat, supersonic trainer powered by two General Electric Company J85-GE-5A engines. The aircraft is manufactured by Northrop Corporation and code named the Talon. The AF32A-18 noise suppressor was built by General Acoustics Corporation to provide noise level reduction for all T-38 aircraft during ground runup operations.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the T-38 aircraft operating in the AF32A-18 noise suppressor.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15°C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. Refer to *Volumes 1 and 2* (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

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1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook Volume 1: Organization, Content and Application*, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.
 2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near-field noise data on the AF32A-18 noise suppressor system during ground runup operations of the T-38 aircraft. For these tests the aircraft was located in the suppressor at Laughlin AFB with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the five engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all the noise samples on magnetic tape. During analysis of each sample, he determined the one-third octave band root-mean-square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location. Figure 1 shows the four near-field locations where ground crew are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations are difficult in the near-field since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test condition A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the T-38 aircraft in the AF32A-18 noise suppressor at the four ground crew locations. This table includes the overall, 1/3 octave-band, and octave band levels. From these data one can calculate the variety of measures given in Table 3, which are widely used to assess the effects of noise on personnel and their performance.

All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.

TABLE 1
MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENTS

T-38 Aircraft Suppressor Ground Runup, Laughlin AFB Survey
 Test #79-733-001, 20 February 1979

Ground Crew Location

1	Wing Tip Position
2	Leak Check Position
3	Engine Maintenance Position
4	Cockpit (Open Canopy)

Aircraft Engine Operation

A	Idle Power (50% RPM), 500 LBS/HR, Fuel Flow
B	80% RPM, 1850 LBS/HR, Fuel Flow
C	90% RPM, 1900 LBS/HR, Fuel Flow
D	Military Power (100% RPM), 2200 LBS/HR, Fuel Flow
E	Afterburner Power, 2200 LBS/HR, Fuel Flow

Meteorology Meteorology

Temperature	9 C
Bar Pressure	.760 M Hg
Rel Humidity	86 %
Wind — Speed	2 M/Sec (4 KTS)
— Direction	120 Deg

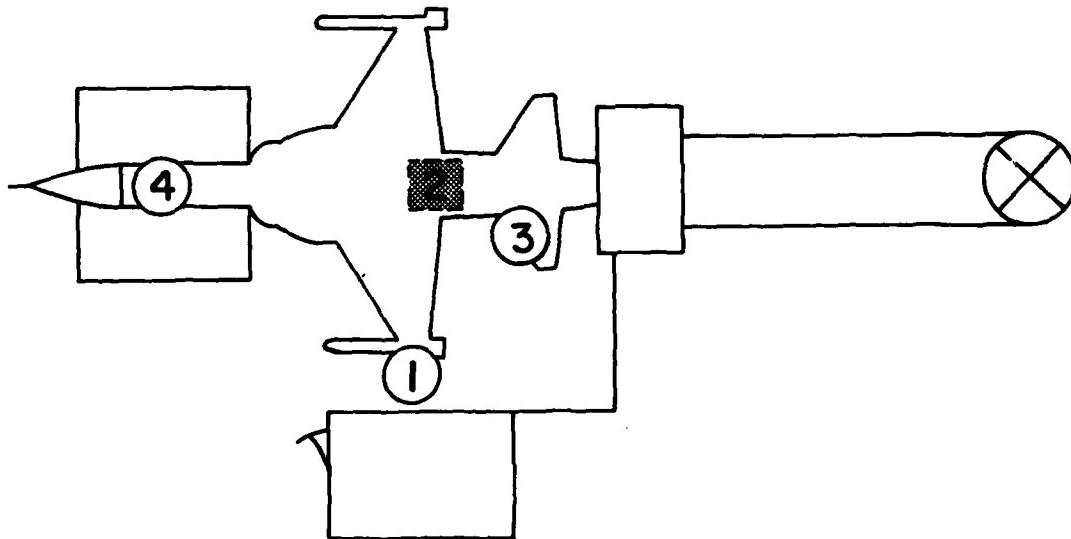


Figure 1. Near-Field Measurement Locations at Laughlin AFB TX

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired far-field data during a 1- 2-hour test period, thus keeping similar meteorological conditions. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 100 meter radius semicircle used in surveying the AF32A-18 noise suppressor was on the ground directly below the center of the exhaust stack.

Table 4 provides cockpit readouts of engine characteristics (% RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of their source where the sound wave-fronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15°C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the T-38 aircraft operating in the AF32A-18 noise suppressor in a standard format.

Estimates of the noise levels for intermediate power settings (e.g., 95% RPM) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 4 through 10 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low.

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

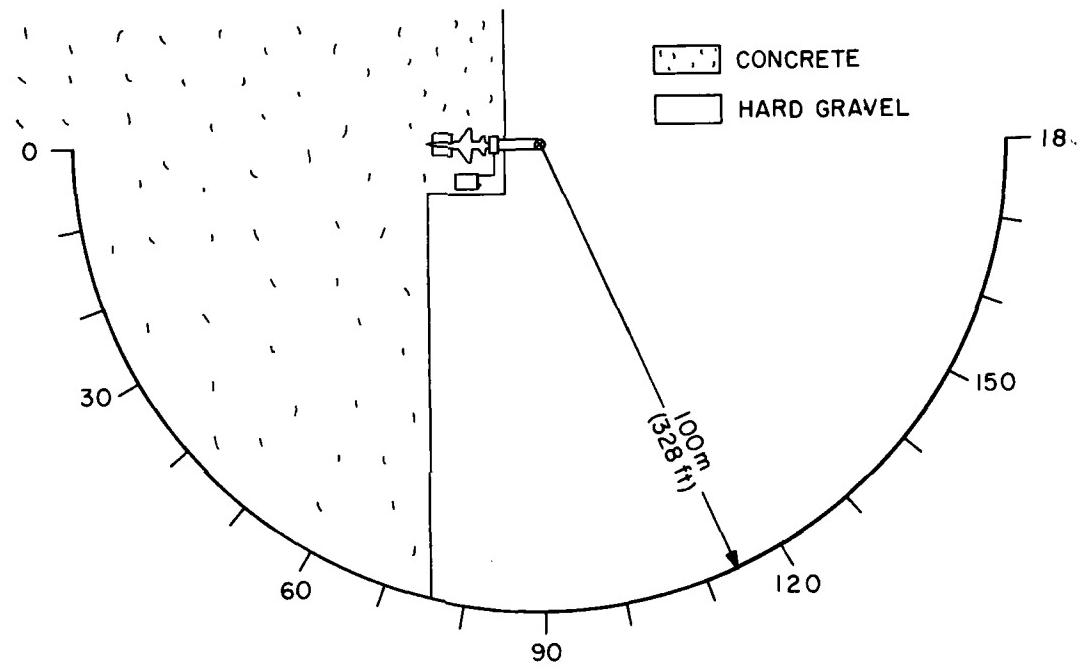


Figure 2. Far-Field Measurement Locations at Laughlin AFB TX

TABLE 2 MEASURED SOUND PRESSURE LEVEL (DBA)
1/3 OCTAVE BAND

2

NOISE SOURCE/SUBJECT*	OPERATION: A= IDLE POWER B= 80% RPM C= 90% RPM	IDENTIFICATIONS									
		TEST 79-733-001	OMEGA 3.2	RUN 01	06 APR 79	PAGE F1	1/C	2/C	3/C	4/C	5/C
NEAR-FIELD NOISE LEVELS		1/A	2/A	3/A	4/A	1/B	2/B	3/B	4/B	5/B	
FREQ (HZ)											
25	76	81	79	74	86	90	89	84	91	94	90
31.5	81.5	87	80	75	95	97	89	92	100	93	95
40	82	94	82	81	91	94	86	89	96	90	96
50	82	97	87	86	85	96	88	85	90	94	91
63	81	93	86	76	87	99	93	85	92	104	100
80	77	92	85	79	86	103	93	88	89	108	98
100	82	93	90	77	90	103	93	86	92	108	95
125	90	93	101	80	94	99	99	83	95	104	100
160	89	94	81	81	92	100	98	87	95	103	99
200	83	96	89	76	92	108	99	83	91	106	97
250	79	91	87	79	93	105	99	85	95	107	105
315	81	95	90	76	93	105	100	83	95	106	100
400	89	100	91	78	95	106	103	87	98	109	102
500	81	91	89	76	95	105	103	89	101	111	105
630	84	91	88	76	94	101	102	89	100	106	105
800	83	93	91	76	96	103	105	88	100	106	107
1000	84	94	92	76	97	105	106	87	103	108	109
1250	86	95	92	78	96	105	106	87	102	107	109
1600	89	95	80	97	104	106	106	87	101	107	110
2000	87	94	81	98	103	106	106	89	101	106	110
2500	89	94	95	81	99	104	108	90	100	106	109
3150	88	93	95	81	99	106	108	91	99	107	108
4000	96	102	99	92	104	109	109	93	101	108	109
5000	88	94	94	82	97	105	107	87	100	108	107
6300	87	93	94	82	101	105	109	92	97	106	106
8000	93	100	97	89	98	103	107	90	96	107	107
10000	85	93	92	81	95	102	106	88	95	105	104
OVERALL	102	109	108	96	14.0	118	118	103	113	121	120
											106

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)
3 1/3 OCTAVE BAND

NOISE SOURCE/SUBJECT T-38 AIRCRAFT IN THE AF32A-1A SUPPRESSOR GROUND CREW NEAR-FIELD NOISE LEVELS	OPERATION!		LOCATION/CONDITION						IDENTIFICATION	
	D= MILITARY POWER	E= AFTERBURNER POWER	1/D	2/D	3/D	4/D	1/E	2/E	3/E	4/E
25	94	100	96	96	97	98	100	104	103	98
31.5	99	104	97	98	96	99	100	106	100	100
40	100	102	96	94	95	99	102	104	97	101
50	93	105	97	94	101	90	101	112	101	100
63	94	106	101	90	101	90	101	110	108	98
80	93	111	102	98	102	98	98	112	106	101
100	96	110	98	96	104	98	99	111	104	103
125	99	106	104	98	106	98	101	106	106	94
160	94	106	104	92	106	92	102	108	105	94
200	91	109	98	88	109	98	96	112	102	91
250	94	106	106	89	106	89	96	106	106	91
315	96	106	102	87	102	87	96	105	102	87
400	101	110	102	90	110	90	103	113	105	89
500	105	111	104	96	111	96	108	117	107	100
630	104	110	102	98	110	98	110	113	106	94
800	105	110	104	100	110	104	107	113	107	102
1000	106	111	105	97	111	95	108	113	109	99
1250	105	112	104	95	112	95	107	114	109	98
1600	107	114	105	97	114	97	107	114	106	98
2000	106	112	104	95	112	95	106	113	106	96
2500	103	111	101	94	111	94	105	114	104	96
3150	102	110	100	93	110	93	104	114	103	96
4000	102	110	99	94	110	99	104	115	103	96
5000	97	106	95	90	106	95	100	111	100	92
6300	100	109	95	91	109	95	101	113	98	93
8000	96	103	92	88	103	92	97	107	95	90
10000	91	101	88	83	101	88	94	105	92	86
OVERALL	116	123	116	109	116	109	118	126	119	112

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (dB)
2 OCTAVE BAND

NOISE SOURCE/SUBJECT: T-38 AIRCRAFT IN THE AF 32A-16 SUPPRESSOR GROUND CREW NEAR-FIELD NOISE LEVELS	OPERATION:			LOCATION/CONDITION				IDENTIFICATION:				
	1/A	2/A	3/A	4/A	1/B	2/B	3/B	4/B	1/C	2/C	3/C	4/C
FREQ (HZ)												
31.5	85	95	85	82	96	99	93	94	101	103	97	99
63	85	99	91	87	91	105	96	91	95	110	102	96
125	93	98	102	84	97	106	102	90	99	110	103	95
250	86	99	94	82	97	111	104	89	99	111	106	92
500	90	101	94	81	99	109	107	93	105	114	109	96
1000	89	99	96	81	101	109	110	92	106	112	113	98
2000	93	99	99	86	103	108	111	94	106	111	114	97
4000	97	103	101	92	105	112	113	96	104	112	113	97
8000	94	101	100	90	103	108	112	95	101	111	111	95
OVERALL	102	109	108	96	110	118	116	103	113	121	120	106

TABLE 2 MEASURED SOUND PRESSURE LEVEL (DB)

FREQ (HZ)	1/0	2/0	3/0	4/0	LOCATION/CONDITION			
					1/E	2/E	3/E	4/E
31.5	103	107	100	102	105	109	105	105
63	98	113	105	100	105	116	110	104
125	101	112	107	98	105	114	110	104
250	99	112	108	93	101	114	108	95
500	108	115	107	101	112	120	111	105
1000	110	116	109	102	112	118	113	105
2000	110	117	106	100	111	119	110	101
4000	106	114	103	97	108	118	107	99
8000	101	110	97	93	103	114	100	95
OVERALL	116	123	116	109	118	126	119	112

TABLE 3 MEASURES OF HUMAN NOISE EXPOSURE

HAZARD/PROTECTION										IDENTIFICATION:			
NOISE SOURCE/SUBJECT		OPERATION*		C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR		TEST 79-733-001							
T-38 AIRCRAFT IN THE AF 32A-16 SUPPRESSOR		A= IDLE POWER B= 80% RPM C= 90% RPM		A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DB) AT EAR		RUN 01							
GROUND CREW		NEAR-FIELD NOISE LEVELS		MAXIMUM PERMISSIBLE TIME (IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)		06 APR 79							
1/A	2/A	3/A	4/A	1/B	2/B	3/B	4/B	1/C	2/C	3/C	4/C		
OASLC	101	109	107	95	110	118	102	112	120	119	105		
OASLA	101	106	106	96	110	117	101	112	119	120	104		
T	25	6	11	60	5	P	25	3.8	P	P	15		
MINIMUM QPL EAR MUFFS													
OASLA*	76	84	83	70	84	93	77	86	96	93	80		
T	960	480	571	960	480	101	120	960	339	60	101	960	
AMERICAN OPTICAL 1700 EAR MUFFS													
OASLA*	71	79	78	66	78	86	71	80	91	88	75		
T	960	960	960	960	960	240	339	960	960	143	240	960	
V-51R EAR PLUGS													
OASLA*	72	81	78	67	82	90	73	85	93	92	77		
T	960	807	960	960	679	170	960	404	101	120	960		
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS													
OASLA*	58	67	65	52	68	76	77	60	72	79	79	64	
T	960	960	960	960	960	960	960	960	960	960	960	960	
H-133 GROUND COMMUNICATION UNIT													
OASLA*	72	79	78	66	82	89	91	74	84	91	92	76	
T	960	960	960	960	679	202	143	960	480	143	120	960	
COMMUNICATION PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)													
PSIL	91	100	97	83	101	109	110	93	106	112	112	97	
ANNOYANCE													
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)													
TONE CORRECTION (C IN DB)													
PNLT	119	126	123	115	127	133	117	125	134	134	119		
C	3	3	2	3	2	1	1	0	1	1	1		

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

(TABLE: MEASURES OF HUMAN NOISE EXPOSURE
3

NOISE SOURCE/SUBJECT*		OPERATION: D= MILITARY POWER E= AFTERBURNER POWER		LOCATION/CONDITION 1/E 2/E 3/E 4/E		IDENTIFICATION: TEST 79-733-001 RUN 02 06 APR 79 PAGE H2		
1/D	2/D	3/D	4/D	1/E	2/E	3/E	4/E	
HAZARD/PROTECTION								
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR								
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DB) AT EAR								
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)								
NO PROTECTION								
OASLC	115	123	116	108	118	126	119	112
OASLA	115	122	114	106	117	125	117	109
T	2.2	P	2.7	1.1	P	P	P	6
MINIMUM QPL EAR MUFFS	89	98	91	83	92	101	94	87
OASLA*	89	98	91	83	92	101	94	87
T	2.02	4.2	1.43	5.71	120	25	85	265
AMERICAN OPTICAL 1700 EAR MUFFS	83	93	86	76	86	95	89	82
OASLA*	83	93	86	76	86	95	89	82
T	5.71	10.1	3.39	9.60	339	7.1	202	679
V-51R EAR PLUGS	89	95	86	81	91	98	91	84
OASLA*	89	95	86	81	91	98	91	84
T	2.02	7.1	2.40	8.07	143	4.2	143	460
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS	75	82	74	67	77	84	78	71
OASLA*	75	82	74	67	77	84	78	71
T	9.60	6.79	9.60	9.60	960	4.80	960	960
H-133 GROUND COMMUNICATION UNIT	88	95	86	79	89	97	90	82
OASLA*	88	95	86	79	89	97	90	82
T	2.40	7.1	3.39	9.60	202	5.0	170	679
COMMUNICATION								
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)								
PSIL	110	116	108	101	112	119	111	104
ANNOYANCE								
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDdB)								
TONE CORRECTION (C IN DB)								
PNLT	126	136	128	120	130	140	130	123
C	1	1	1	1	1	2	1	1

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

TABLE 4
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

T-38 Aircraft In The AF32-18 Noise Suppressor
 Laughlin AFB TX
 Test #77-733-001, 1 September 1977

Aircraft Engine Operation

Idle	Single Engine 48 % 517 C, EGT 500 LBS/HR, Fuel Flow
79% RPM	Single Engine 75 % rpm 405 C, EGT 790 LBS/HR, FF
94% RPM	Single Engine 94 % RPM 500 C, EGT 1425 LBS/HR, FF
Military Power	Single Engine 99.5 % RPM 635 C, EGT 2100 LBS/HR, FF
Afterburner Power	Single Engine 100 % RPM 635 C, EGT 2100 LBS/HR, FF

Meteorology

Temperature	30 C
Bar Pressure	.762 M Hg
Rel Humidity	51 %
Wind — Speed	Calm
— Direction	Calm

TABLE: MEASURED SOUND PRESSURE LEVEL (dB)
1/3 OCTAVE BAND
5 DISTANCE = 100 METERS

FREQ (HZ)	ANGLE (DEGREES)										IDENTIFICATION:				
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140
25	65<	65<	65<	65<	65<	65<	65<	65<	65<	65<	65<	67<	70<	73<	75<
31.5	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	70<	71<	72<
40	67<	67<	67<	67<	67<	67<	67<	67<	67<	67<	67<	67<	68<	69<	71<
50	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	70<	72<	73<
63	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	69<	70<	72<	73<
80	65<	65<	65<	65<	65<	65<	65<	65<	65<	65<	65<	65<	67<	70<	73<
100	68<	68<	68<	68<	68<	68<	68<	68<	68<	68<	68<	68<	69<	71<	73<
125	70	68<	68<	68<	68<	68<	68<	68<	68<	68<	68<	68<	69<	72<	73<
160	63<	64<	64<	64<	64<	64<	64<	64<	64<	64<	64<	64<	64<	66<	67<
200	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	62<
250	59<	59<	59<	59<	59<	59<	59<	59<	59<	59<	59<	59<	59<	61<	64<
315	61<	61<	61<	61<	61<	61<	61<	61<	61<	61<	61<	61<	61<	64<	67<
400	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	59<	61<
500	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	53<	55<
630	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	54<	56<
800	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<
1000	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<
1250	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<
1600	54<	65	65	63	62	59	56	53	51	51	51	51	51	51	51
2000	54<	63	66	65	64	61	57	56	53	51	50	50	50	50	50
2500	50<	61	66	64	62	58	55	51	51	51	50	50	50	50	50
3150	60<	65	64	63	63	58<	54<	51<	55	55	56	56	56	56	56
4000	60	68	70	68	65	65	60	55<	55	56	56	56	56	56	56
5000	52	61	63	63	60	55	53	48	50	51	53	56	56	56	56
6300	52	60	63	62	57	52	49	46	46	50	53	56	57	54	56
8000	60	66	67	64	60	58	55	51	51	52	55	57	60	58	57
10000	50	56	56	57	56	50	46	45	41<	42<	43	45	47	50	49
OVERALL	75	77	76	77	76	75	73	70	68	69	69	74	80	84	79

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)
5
1/3 OCTAVE BAND
DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT		(OPERATION!)										METEOROLOGY!										IDENTIFICATIONS					
		75% RPM ENGINE RUNUP					SINGLE ENGINE					GROUND RUNUP (SUPPRESSED)					TEMP = 30 C					BAR PRESS = .762 H HG		REL HUMID = 51 %		TEST 77-733-001	
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	RUN 02	PAGE 2	PAGE 2	PAGE 2	PAGE 2	PAGE 2		
25	72<	71<	70<	71<	70<	71<	72<	68<	70<	71<	72<	73<	72<	75<	75<	73<	77	76	72<	70<	70<	70<	70<	70<			
31.5	68<	70<	70<	70<	71<	71<	72<	73<	71<	69<	71<	70<	68<	70<	69<	70<	69<	70<	72<	73<	72<	70<	71<	71<			
40	70<	70<	71<	71<	71<	72<	73<	71<	69<	71<	70<	72<	71<	69<	72<	71<	69<	72<	73<	72<	70<	70<	68<	68<			
50	71<	69<	70<	69<	71<	71<	72<	70<	68<	68<	68<	69<	72<	71<	70<	70<	69<	69<	69<	69<	69<	69<	68<	68<			
63	68<	69<	69<	69<	68<	70<	72<	69<	70<	68<	68<	65<	65<	65<	66<	66<	65<	66<	66<	66<	66<	66<	66<	66<			
80	67<	66<	67<	65<	68<	70<	68<	65<	68<	69<	70<	68<	70<	68<	70<	69<	69<	69<	69<	69<	69<	69<	68<	68<			
100	69<	70<	72<	71<	71<	74<	71<	74<	71<	69<	70<	68<	70<	72<	72<	66<	66<	66<	67<	66<	66<	66<	66<	66<			
125	70	69	69	69	70	69	70	68<	65<	67<	67<	67<	67<	67<	67<	71	73	64<	64<	63<	61<	62<	62<				
160	71	72	72	74	72	70	70	66	67	71	67	67	69	69	67	64<	64<	63<	63<	62<	61<	62<	62<				
200	70	65<	66<	66<	68	67	65<	62<	63<	63<	65<	61<	61<	69	67	63<	63<	61<	60<	57<	55<	58<	58<				
250	69	69	68	68	68	68	67	67	60<	62<	70	65<	67	68	68	60<	59<	59<	59<	56<	55<	55<	55<				
315	66	65	67	66	67	66	63	60<	68	61<	68	61<	63	61<	57<	57<	56<	51<	51<	51<	51<	51<	51<	51<			
400	62	62	65	62	60	57<	58<	55<	58<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	52<			
500	61<	61<	62<	62<	62<	62<	59<	55<	55<	55<	54<	54<	54<	54<	54<	54<	54<	54<	54<	54<	54<	54<	54<	52<			
630	61<	58<	58<	59<	55<	59<	55<	53<	54<	54<	52<	53<	52<	53<	52<	53<	52<	53<	52<	52<	52<	52<	52<	52<			
800	59<	56<	56<	55<	57<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<	52<			
1000	60<	56<	56<	55<	57<	52<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<	53<			
1250	59<	56<	53<	53<	55<	51<	51<	52<	52<	51<	51<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<			
1600	61	61	55<	55<	57<	63	53	47	46<	46<	47	40<	42<	48	52	50	50	50	50	50	50	50	50	50			
2000	60	58<	55<	58<	52<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<			
2500	58<	57<	52<	55<	49<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<	50<			
3150	58<	56<	56<	52<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<	55<			
4000	63	61	56	59	52<	45<	52<	52<	51<	51<	51<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<	45<			
5000	59	55	50	53	47	40<	46<	46<	47	47	47	40<	42<	48	52	50	50	50	50	50	50	50	50	50			
6300	63	56	52	55	48	42<	47	47	49	43<	43<	46	50	49	49	49	49	49	49	49	49	49	49	49			
8000	59	57	52	54	46	38<	46	46	47	40<	41<	42<	48	47	51	51	51	51	51	51	51	51	51	51			
10000	53	50	49	41<	41<	40<	39<	33<	34<	34<	34<	41<	40<	41<	41<	41<	41<	41<	41<	41<	41<	41<	41<	41<			
OVERALL	81	80	81	81	81	80	78	80	76	81	81	80	79	80	80	80	80	80	80	80	80	80	80	80			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE 1 MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
5 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT		OPERATION:				METEOROLOGY:				IDENTIFICATION:										
T-38 AIRCRAFT IN THE AF32A-16-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE		(94X RPM POWER RUNUP (SINGLE ENGINE (GROUND RUNUP (SUPPRESSED))				TEMP = 30 C BAR PRESS = .762 HG REL HUMID = 51 %				TEST 77-733-001 RUN 03 14 SEP 78 PAGE 2										
FREQ (HZ)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	76	76	75<	74<	74<	74<	76	76	76	76	75<	75<	75<	75<	75<	75<	75<	75<	75<	75<
31.5	77	76	78	76	74<	80	76	74<	75<	77	79	78	76	76	77	76	77	76	76	76
40	78	79	79	80	80	80	80	80	80	80	80	80	78	78	79	79	78	80	78	80
50	77	78	79	78	78	78	79	77	80	80	79	77	78	79	80	79	79	79	79	79
63	62	61	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	80	79	82
80	78	76	77	76	74<	76	76	76	77	77	75<	76	76	76	76	76	76	76	76	76
100	74<	76	73<	74<	73<	71<	73<	76	73<	71<	71<	71<	71<	72<	71<	71<	70<	70<	69<	69<
125	78	77	77	75	74	73	72	74	69	70	67<	69	71	69	71	67<	70	70	72	72
160	76	73	74	73	71	68	69	69	69	69	66	66	68	67	69	68	64	67	67	68
200	71	70	71	69	67	65<	66	66<	65<	65<	63<	63<	62<	65<	65<	64<	62<	60<	60<	63<
250	70	69	71	72	68	68	68	68	68	68	65<	65<	62<	63<	64<	64<	58<	57<	57<	57<
315	67	68	70	68	64	67	65	67	65	66	66	62<	61<	59<	59<	58<	53<	52<	52<	52<
400	66	69	73	68	65	65	62	61	58<	58<	55<	54<	54<	57<	58<	57<	68	68	69	69<
500	64	66	70	67	65	64	61<	61<	57<	54<	57<	53<	54<	55<	55<	55<	62<	62<	62<	63<
630	65	65	67	64	63	60<	59<	58<	52<	52<	53<	52<	52<	52<	52<	52<	69	53<	51<	51<
800	63	63	63	64	60<	60<	59<	57<	51<	54<	53<	54<	54<	52<	53<	53<	68	56<	54<	53<
1000	61<	64	61<	62<	60<	58<	58<	56<	54<	53<	54<	54<	54<	52<	53<	53<	61<	55<	53<	53<
1250	59<	60<	57<	59<	57<	56<	56<	56<	52<	52<	52<	52<	52<	52<	52<	52<	63	56<	54<	54<
1600	60<	63	58<	62	60<	58<	56<	56<	50<	50<	53<	53<	53<	53<	53<	53<	56<	62	58<	56<
2000	61	62	57<	62	57<	62	57<	50<	50<	55<	49<	52<	51<	52<	53<	53<	57<	61	59<	56<
2500	59<	61	55<	62	57<	55<	55<	49<	51<	52<	51<	52<	51<	52<	53<	53<	57<	61	59<	56<
3150	58<	59<	54<	61<	57<	54<	56<	56<	52<	46<	48<	54<	54<	55	57	57	60	64	61	56<
4000	62	66	59	64	60	62	65	62	56	46<	48<	51	58	57	58	58	61	65	63	59
5000	60	61	56	64	58	59	55	51	49	51	51	52	53	55	56	56	58	58	58	54
6300	57	58	52	61	55	54	52	47	45	47	45	47	49	49	49	49	50	56	56	52
8000	57	61	55	59	54	53	53	51	46	43<	44<	44	44	44	44	44	47	52	51	50
10000	52	53	48	54	49	47	45	41<	38<	40<	40<	40<	40<	40<	40<	40<	40<	40<	40<	40<
OVERALL	88	87	88	87	87	87	87	87	87	87	87	87	87	87	87	86	86	86	86	87

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

(TABLE I MEASURED SOUND PRESSURE LEVEL (DB)
 1/3 OCTAVE BAND
 5 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT		(OPERATIONS)						(METEOROLOGY)					
		MILITARY POWER	99.5 % RPM	TEMP	=	30 C	BAR PRESS	=	.762 H HG	REL HUMID	=	51 %	
T-38 AIRCRAFT IN THE		(SINGLE ENGINE RUNUP (SUPPRESSED))						(GROUND RUNUP (SUPPRESSED))					
AF 32A-18-SUPPRESSOR		()						()					
ENGINE J85-GE-5A		()						()					
FAR FIELD NOISE		()						()					
FREQ	(HZ)	0	10	20	30	40	50	60	70	80	90	100	ANGLE (DEGREES)
25	76	77	78	77	76	77	78	79	80	76	78	79	77
31.5	79	80	79	79	81	82	76	80	80	80	78	79	79
40	82	81	82	83	84	82	81	82	82	83	82	83	84
50	89	81	81	82	81	83	82	81	82	83	84	83	84
63	84	83	84	84	84	84	84	83	83	85	84	85	86
80	82	81	86	81	82	80	81	83	81	82	81	83	82
100	80	81	79	80	80	78	78	79	74	75	76	75	76
125	83	81	82	80	79	77	72	79	73	71	76	75	77
160	81	78	78	78	77	75	75	71	66	72	72	74	74
200	77	73	72	72	70	71	70	69	68	67	68	69	67
250	72	70	71	71	69	68	68	66	66	62	65	66	64
315	71	73	73	73	69	66	67	67	55	63	63	63	63
400	72	76	76	76	72	68	69	67	64	60	57	58	59
500	70	74	74	73	67	65	66	64	58	61	56	57	56
630	70	72	71	71	69	67	65	65	63	59	56	57	58
800	66	70	69	69	68	67	67	66	64	60	58	59	60
1000	67	69	70	72	70	67	67	67	62	59	56	57	55
1250	67	70	72	71	66	67	68	63	62	56	55	57	54
1600	65	69	70	70	68	66	67	64	55	52	52	52	51
2000	64	68	69	71	67	65	65	66	63	59	56	56	57
2500	63	68	71	73	66	64	65	65	63	61	52	52	51
3150	62	68	69	70	65	63	63	62	60	57	51	51	50
4000	66	68	69	71	66	64	63	62	60	59	53	50	51
5000	61	65	65	68	63	63	61	60	58	57	51	51	50
6300	66	71	68	68	69	67	66	62	61	57	56	55	54
8000	64	62	62	63	61	60	60	56	53	47	45	47	46
10000	55	55	58	57	55	54	53	50	46	42	39	41	47
OVERALL	91	91	92	91	91	90	90	89	90	90	90	91	91

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

) IDENTIFICATION

) TEST 77-733-001

) RUN 04

) OMEGA 1.4

) 14 SEP 78

) PAGE 2

TABLE 5 MEASURED SOUND PRESSURE LEVEL (dB)
1/3 OCTAVE BAND
DISTANCE = 100 METERS

MEASURED SOUND PRESSURE LEVEL (dB)										IDENTIFICATION:			
1/3 OCTAVE BAND DISTANCE = 100 METERS										TEST 77-733-001			
NOISE SOURCE/SUBJECT:										RUN 05			
T-38 AIRCRAFT IN THE AF32A-16-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE						OPERATION:							
(MAX POWER AFTERBURNER (SINGLE ENGINE (GROUND RUNUP (SUPPRESSED))						METEOROLOGY:							
TEMP = 30 C BAR PRESS = .762 HG REL HUMID = 51 %)						PAGE 2							
ANGLE (DEGREES)													
FREQ (Hz)	0	10	20	30	40	50	60	70	80	90	100		
25	84	83	84	85	82	81	82	83	86	85	84		
31.5	82	82	80	81	81	83	82	83	81	82	81		
40	88	87	87	87	89	86	87	89	88	87	86		
50	88	90	88	89	89	90	89	91	91	90	90		
63	91	88	89	89	89	90	89	88	90	90	90		
80	92	90	90	91	92	92	91	92	91	91	90		
100	89	89	89	89	89	90	89	87	86	86	89		
125	88	87	87	86	86	83	85	82	81	83	84		
160	84	83	84	82	81	80	79	78	75	81	82		
200	80	81	81	81	80	81	79	78	75	78	79		
250	76	77	77	75	73	73	74	74	71	72	73		
315	74	77	77	73	70	71	72	71	65	68	70		
400	73	80	79	75	71	70	73	68	63	65	67		
500	73	81	81	81	75	74	73	71	65	67	69		
630	74	77	77	77	71	69	69	70	65	65	66		
800	69	74	76	75	71	70	69	68	63	66	66		
1000	70	76	78	73	70	69	69	67	63	67	69		
1250	69	74	76	75	72	68	69	66	64	60	61		
1600	67	73	75	75	71	68	68	67	64	60	64		
2000	66	71	74	75	70	66	66	68	63	59	62		
2500	64	73	78	77	70	65	66	68	67	63	61		
3150	62	71	76	75	67	63	64	65	60	54	55		
4000	66	70	75	74	67	63	63	63	59	54	55		
5000	60	67	70	72	65	60	61	60	56	52	53		
6300	65	74	71	71	68	66	66	65	60	58	61		
8000	65	65	64	65	61	59	61	54	53	58	54		
10000	56	57	59	58	55	53	51	48	47	42	43		
OVERALL	98	97	97	97	97	97	97	96	97	96	97		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

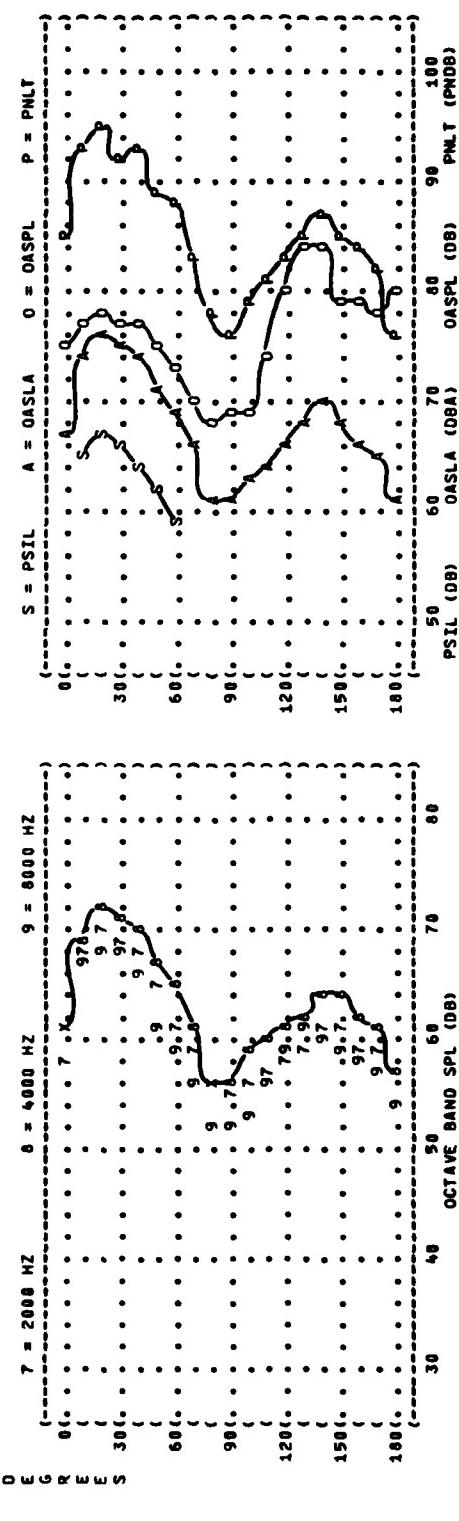
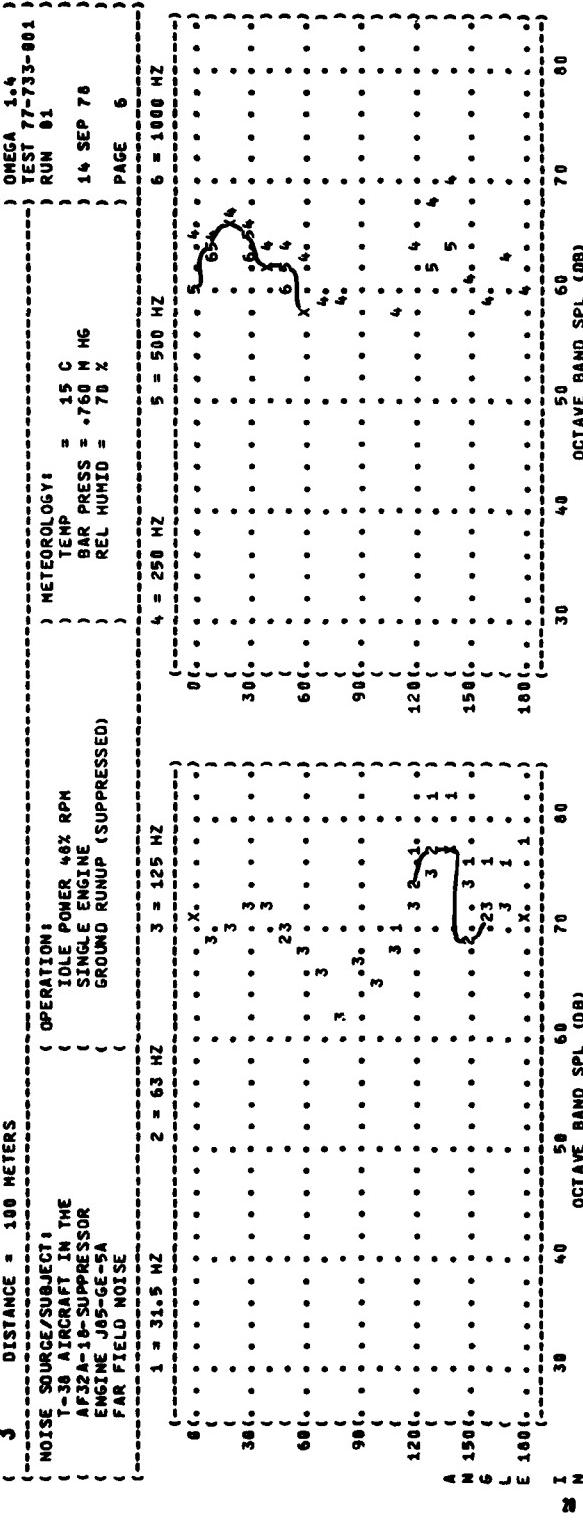


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

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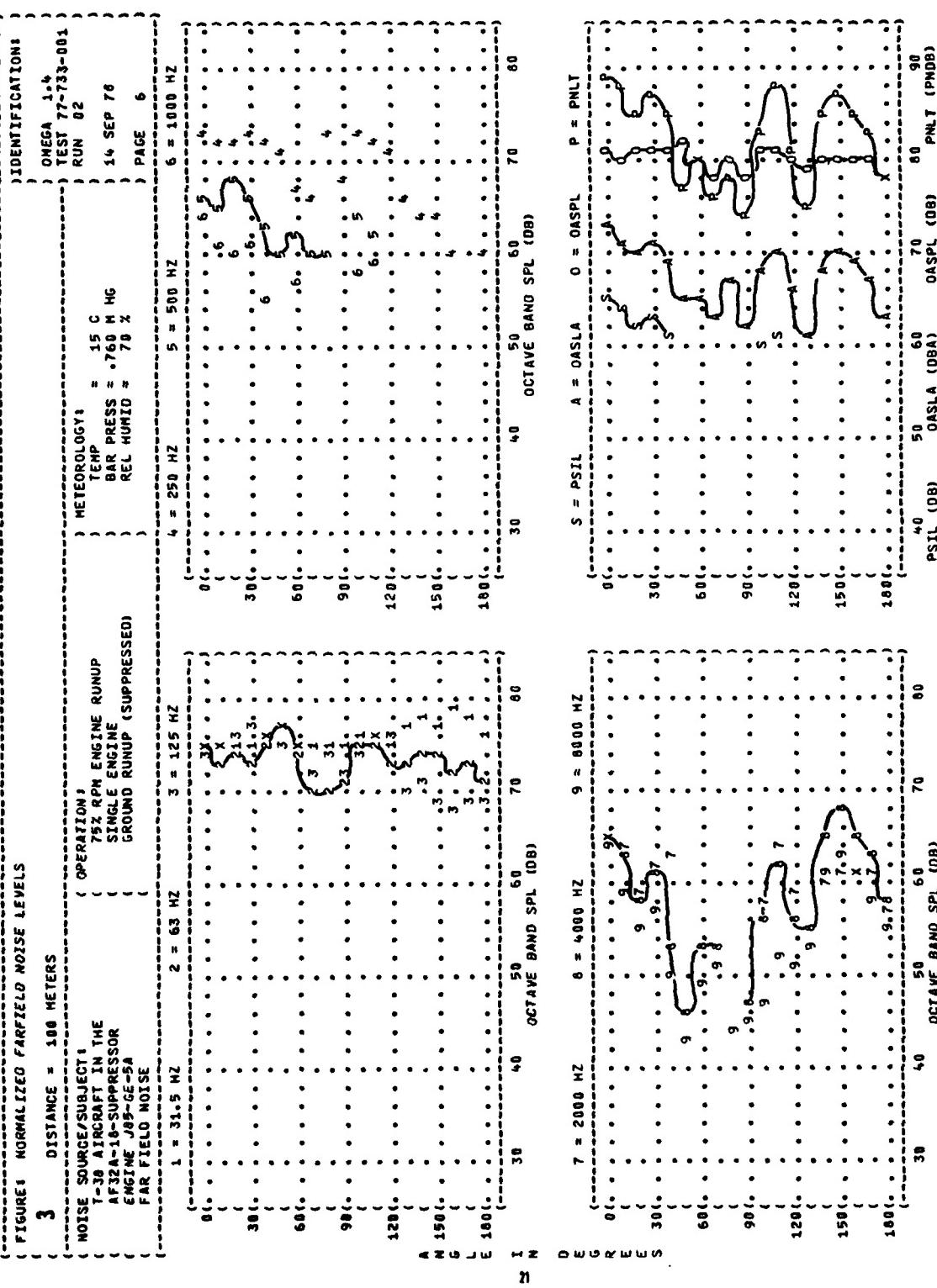


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-1B-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION 1

94% RPM POWER RUNUP

SINGLE ENGINE

GROUND RUNUP (SUPPRESSED)

TEST 77-733-001

RUN 03

14 SEP 78

PAGE 6

METEOROLOGY

TEMP = 15 C

BAR PRESS = .760 Hg

REL HUMID = 70 %

FAR FIELD

3 = 125 Hz

4 = 250 Hz

5 = 500 Hz

6 = 1000 Hz

7 = 2000 Hz

8 = 4000 Hz

9 = 8000 Hz

10 = 16000 Hz

11 = 32000 Hz

12 = 64000 Hz

13 = 128000 Hz

14 = 256000 Hz

15 = 512000 Hz

16 = 1024000 Hz

17 = 2048000 Hz

18 = 4096000 Hz

19 = 8192000 Hz

20 = 16384000 Hz

21 = 32768000 Hz

22 = 65536000 Hz

23 = 131072000 Hz

24 = 262144000 Hz

25 = 524288000 Hz

26 = 1048576000 Hz

27 = 2097152000 Hz

28 = 4194304000 Hz

29 = 8388608000 Hz

30 = 16777216000 Hz

31 = 33554432000 Hz

32 = 67108864000 Hz

33 = 134217728000 Hz

34 = 268435456000 Hz

35 = 536870912000 Hz

36 = 1073741824000 Hz

37 = 2147483648000 Hz

38 = 4294967296000 Hz

39 = 8589934592000 Hz

40 = 17179869184000 Hz

41 = 34359738368000 Hz

42 = 68719476736000 Hz

43 = 137438953472000 Hz

44 = 274877906944000 Hz

45 = 549755813888000 Hz

46 = 1099511627776000 Hz

47 = 2199023255552000 Hz

48 = 4398046511104000 Hz

49 = 8796093022208000 Hz

50 = 17592186044416000 Hz

IDENTIFICATION

) OMEGA 1.4

) TEST 77-733-001

) RUN 03

) 14 SEP 78

) PAGE 6

METEOROLOGY

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40 = 17592186044416000 Hz

41 = 35184372088832000 Hz

42 = 70368744177664000 Hz

43 = 14073748835532000 Hz

44 = 28147497671064000 Hz

45 = 56294995342128000 Hz

46 = 112589990684256000 Hz

47 = 225179981368512000 Hz

48 = 450359962737024000 Hz

49 = 900719925474048000 Hz

50 = 1801439850948096000 Hz

51 = 3602879701896192000 Hz

52 = 7205759403792384000 Hz

53 = 14411518807584768000 Hz

54 = 28823037615169536000 Hz

55 = 57646075230339072000 Hz

56 = 115292150460678144000 Hz

57 = 230584300921356288000 Hz

58 = 461168601842712576000 Hz

59 = 922337203685425152000 Hz

60 = 1844674407370850304000 Hz

61 = 3689348814741700608000 Hz

62 = 7378697629483401216000 Hz

63 = 14757395258966802432000 Hz

64 = 29514790517933604864000 Hz

65 = 59029581035867209728000 Hz

66 = 118059162071734419456000 Hz

67 = 236118324143468838912000 Hz

68 = 472236648286937677824000 Hz

69 = 944473296573875355648000 Hz

70 = 1888946593147750711296000 Hz

71 = 3777893186295501422592000 Hz

72 = 7555786372591002845184000 Hz

73 = 15111572745820055690368000 Hz

74 = 30223145491640111380736000 Hz

75 = 60446290983280222761472000 Hz

76 = 120892581966560445322944000 Hz

77 = 241785163933120890645888000 Hz

78 = 483570327866241781291776000 Hz

79 = 967140655732483562583552000 Hz

80 = 193428131146496712516704000 Hz

81 = 386856262292993425033408000 Hz

82 = 773712524585986850066816000 Hz

83 = 1547425049171973700133632000 Hz

84 = 3094850098343947400267264000 Hz

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98 = 5070602411302723420596710528000 Hz

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100 = 20282409645210933682386842112000 Hz

101 = 40564819290421867364773684224000 Hz

102 = 81129638580843734729547368448000 Hz

103 = 162259277161687469490854736896000 Hz

104 = 324518554323374938981709473792000 Hz

105 = 649037108646749877963418947584000 Hz

106 = 129807421729349975592683789168000 Hz

107 = 259614843458699951185367578336000 Hz

108 = 519229686917399902370735156672000 Hz

109 = 1038459373834799804741470313344000 Hz

110 = 2076918747669599609482940626688000 Hz

111 = 4153837495339199218965881253376000 Hz

112 = 8307674990678398437931762506752000 Hz

113 = 16615349981356796875863525013504000 Hz

114 = 33230699962713593751727050027008000 Hz

115 = 66461399925427187503454100054016000 Hz

116 = 132922799850854375068508200108032000 Hz

117 = 265845599701708750137016400216064000 Hz

118 = 531691199403417500274032800432128000 Hz

119 = 106338239880683500548065600864256000 Hz

120 = 2126764797613670001096112001728512000 Hz

121 = 4253529595227340002192224003457024000 Hz

122 = 8507059190454680004384448006914048000 Hz

123 = 17014118380909360087688960013828096000 Hz

124 = 34028236761818720017377920027656192000 Hz

125 = 68056473523637440034755840055312384000 Hz

126 = 136112947047274800695111200110625768000 Hz

127 = 272225894094549600139022400221251536000 Hz

128 = 544451788189099200278044800442503112000 Hz

129 = 108890357637819600556089600885006224000 Hz

130 = 2177807152756392001112176001770012448000 Hz

131 = 4355614305512784002224352003540028896000 Hz

132 = 8711228611025568004448704007080057792000 Hz

133 = 17422457222051136008897440014160115584000 Hz

134 = 34844914444102272001779488002823023128000 Hz

135 = 6968982888820454400355897600564604656000 Hz

136 = 1393796577644090880711795200112920912000 Hz

137 = 2787593155288181760143590400225841824000 Hz

138 = 5575186310576363520287180800451683648000 Hz

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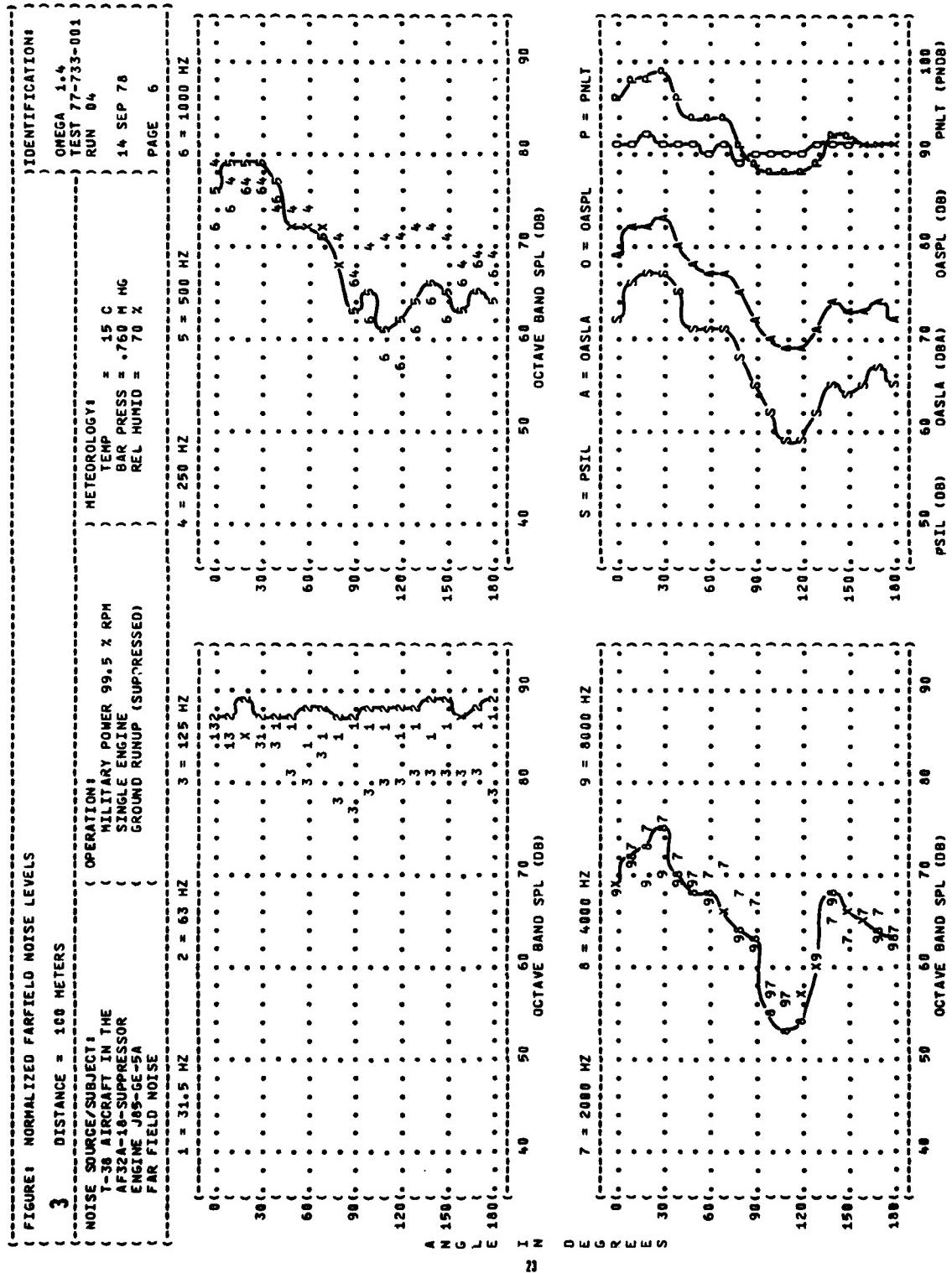


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

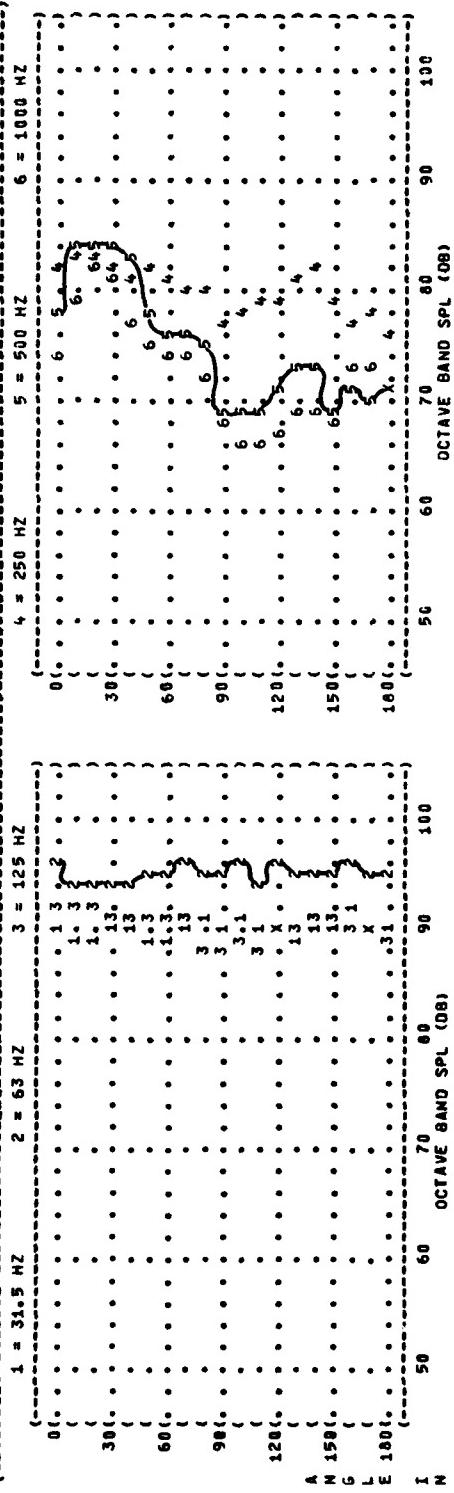
3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: Y-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION: MAX POWER AFTERBURNER
SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C
BAR PRESS = 760 MM HG
REL HUMID = 70 %

TEST 77-733-01
RUN 05
14 SEP 78
PAGE 6



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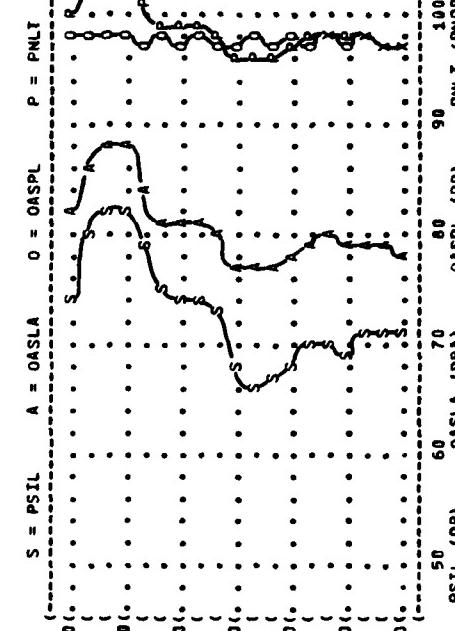
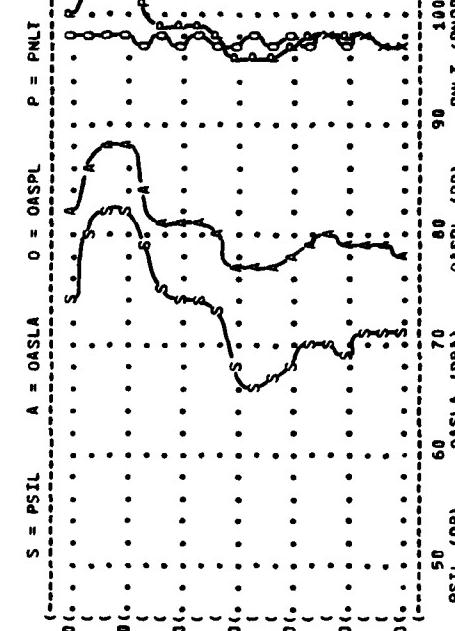
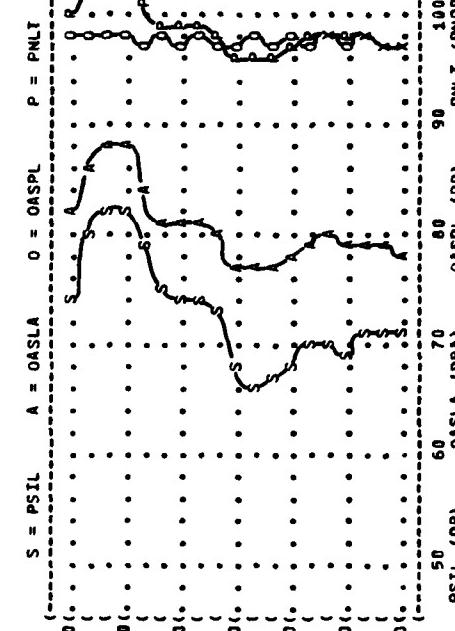
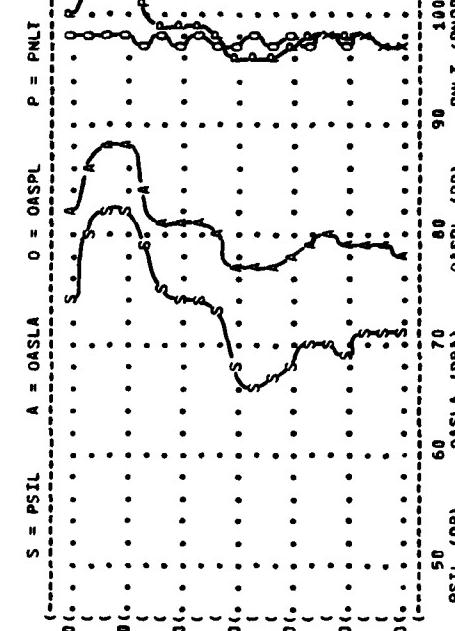
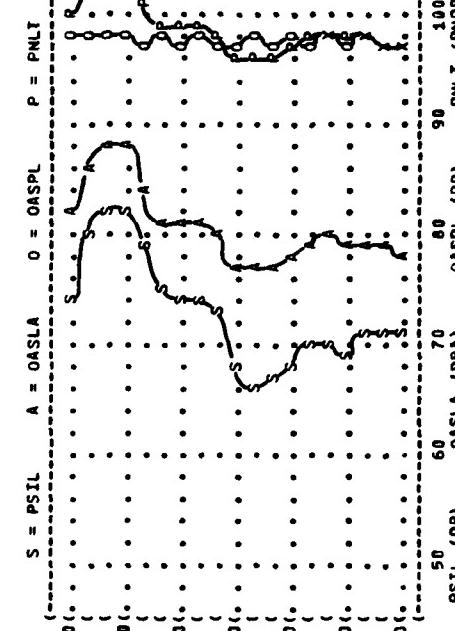
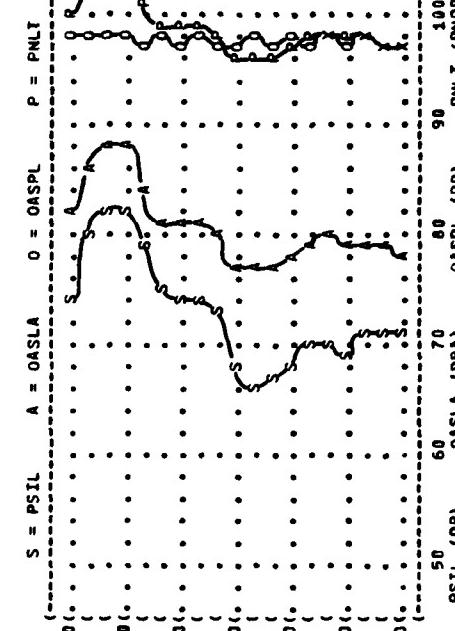
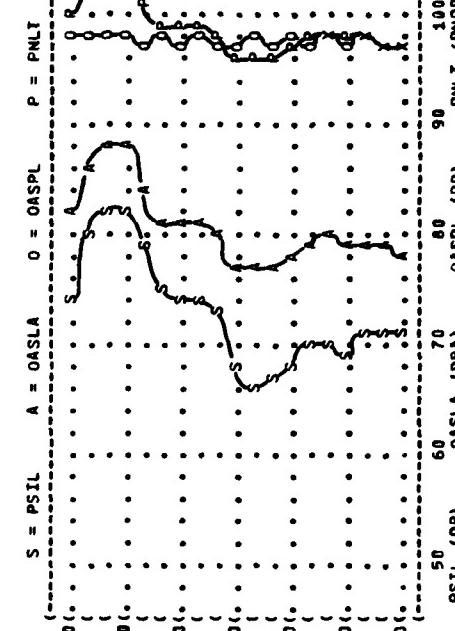
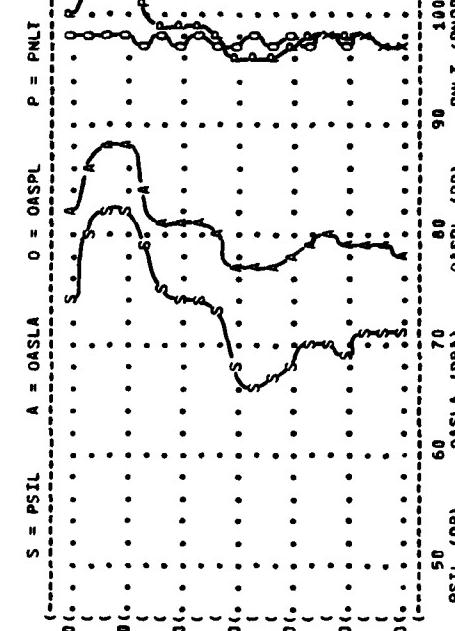
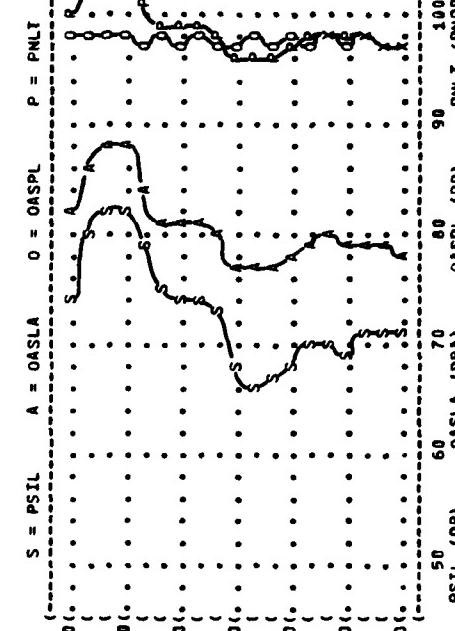
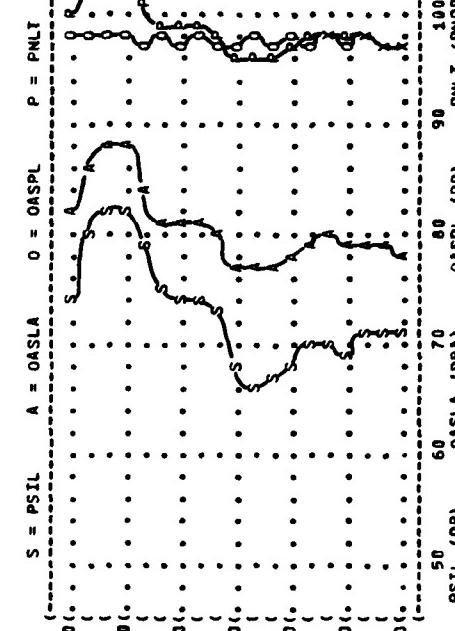
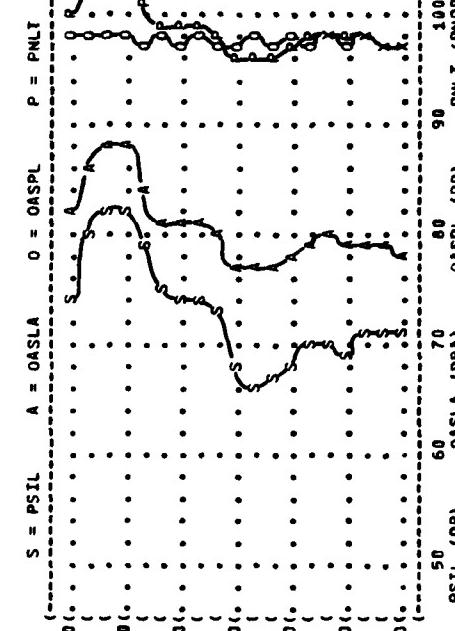
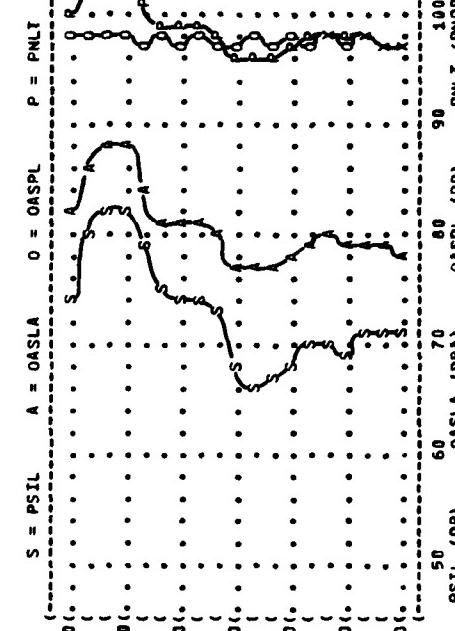
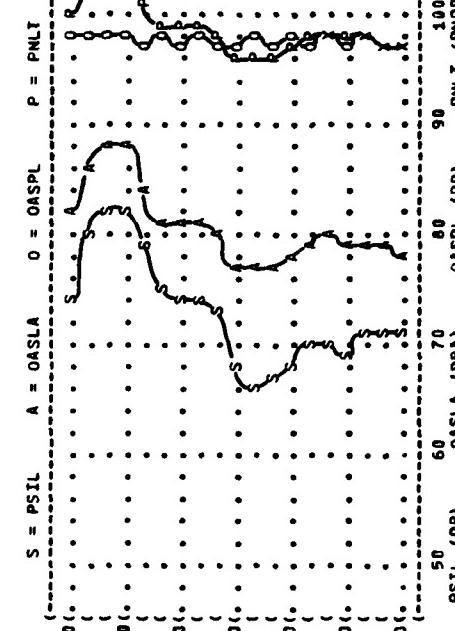
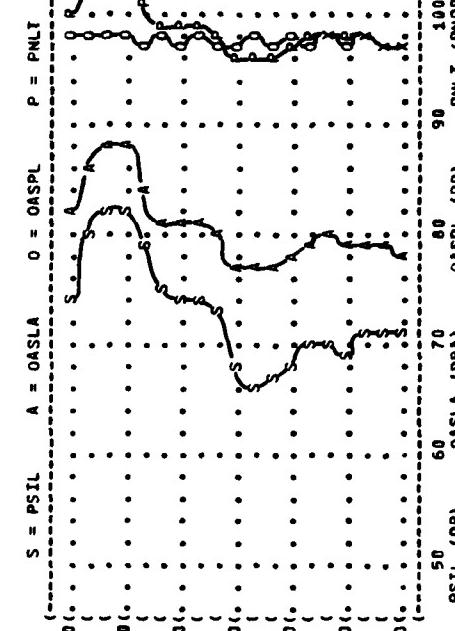
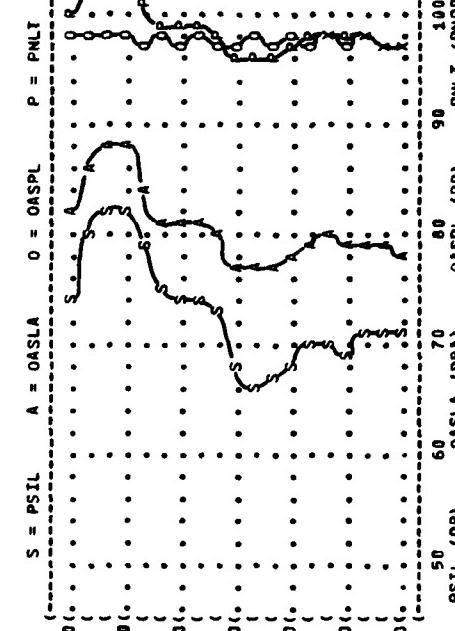
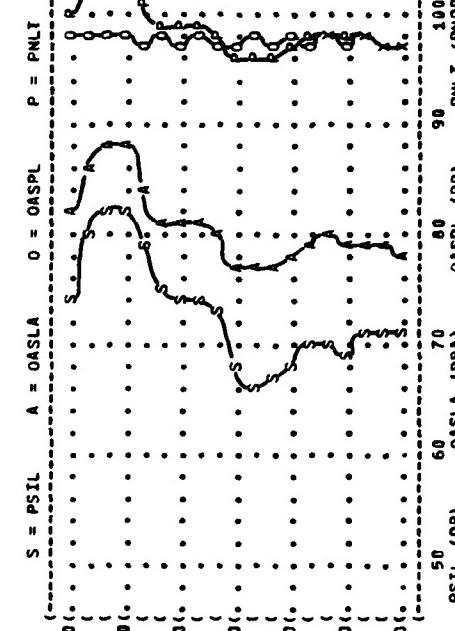
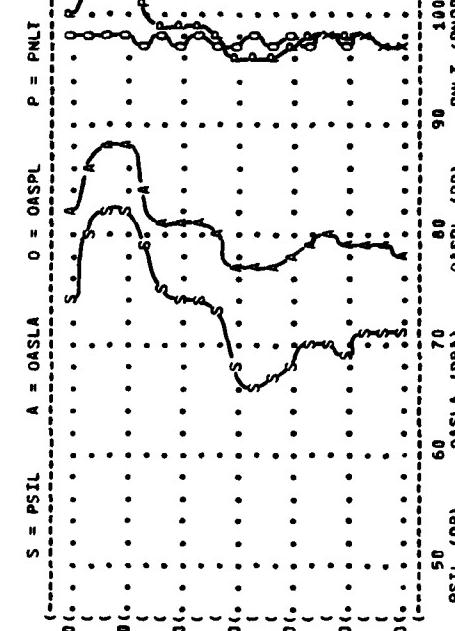
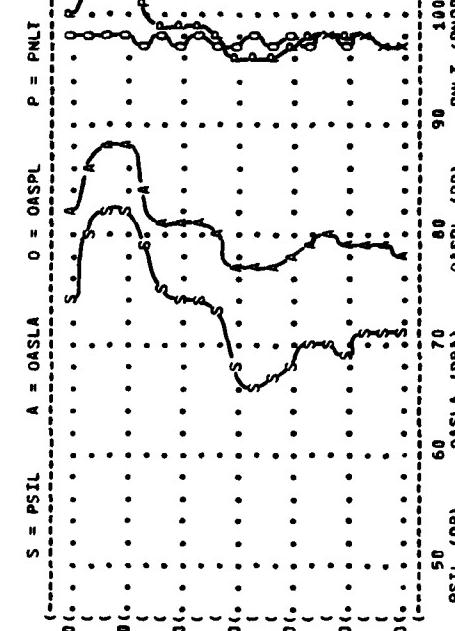
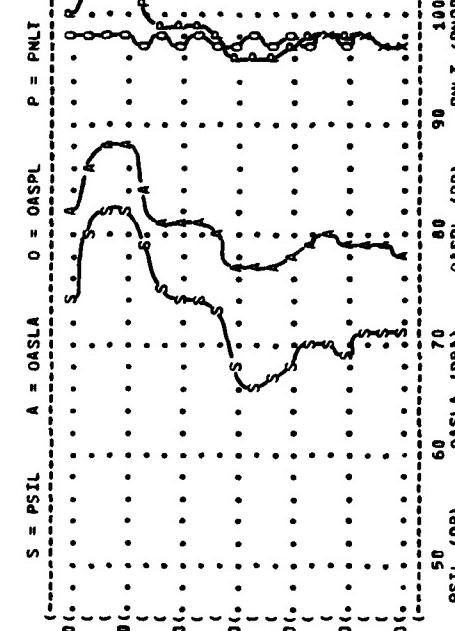
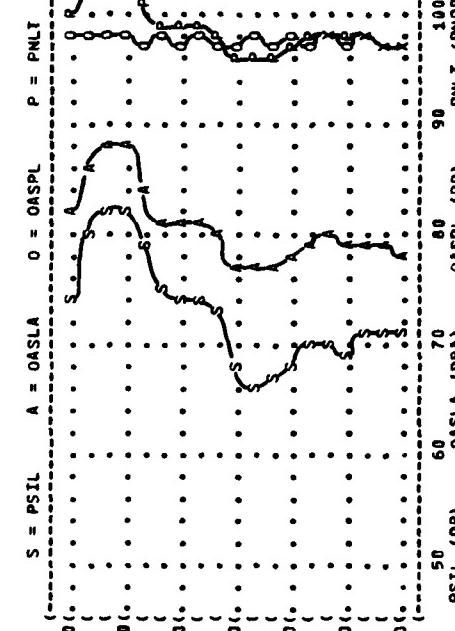
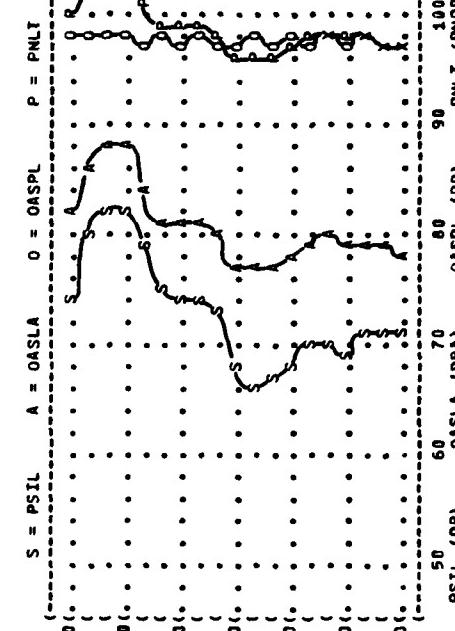
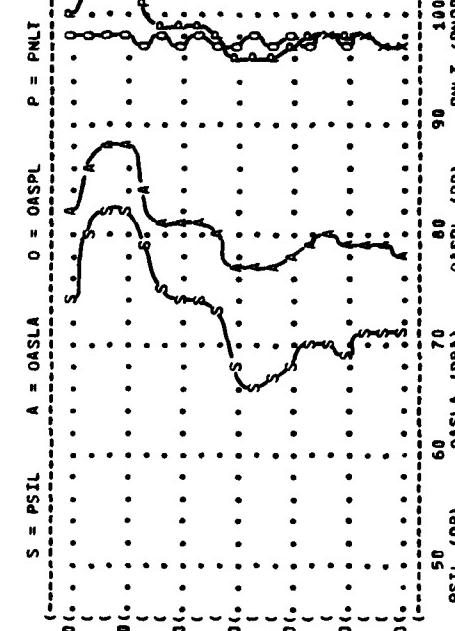
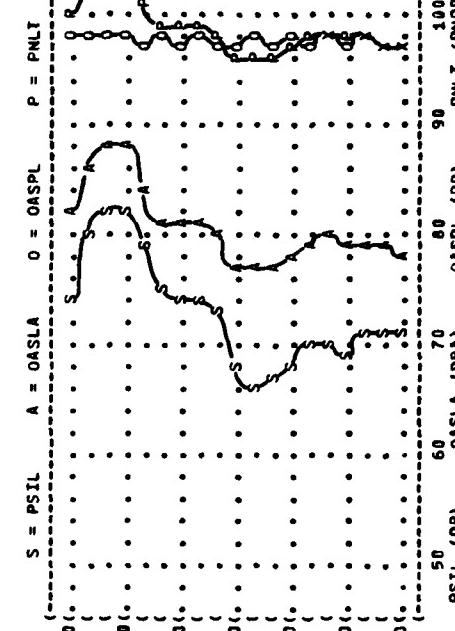
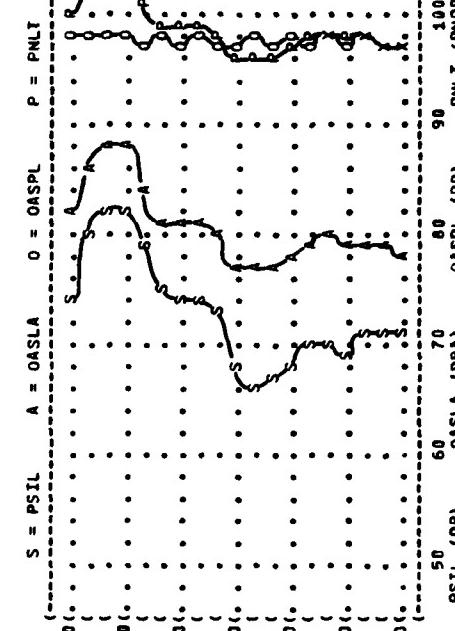
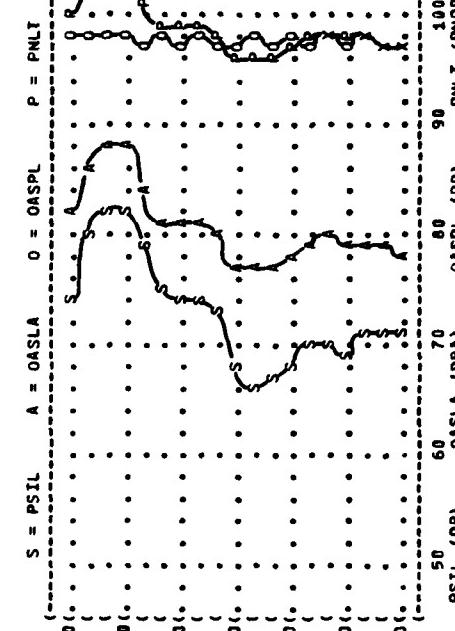
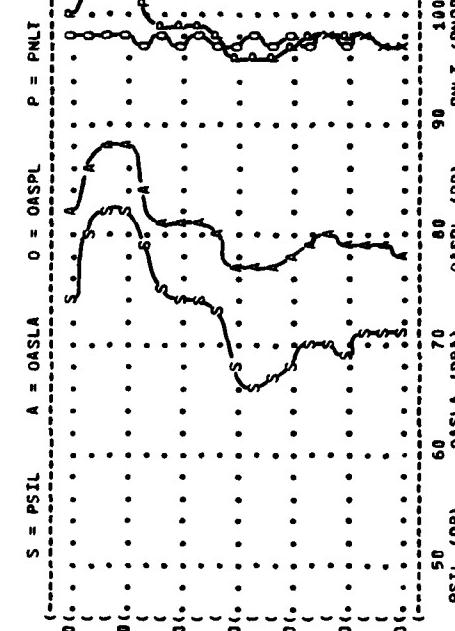
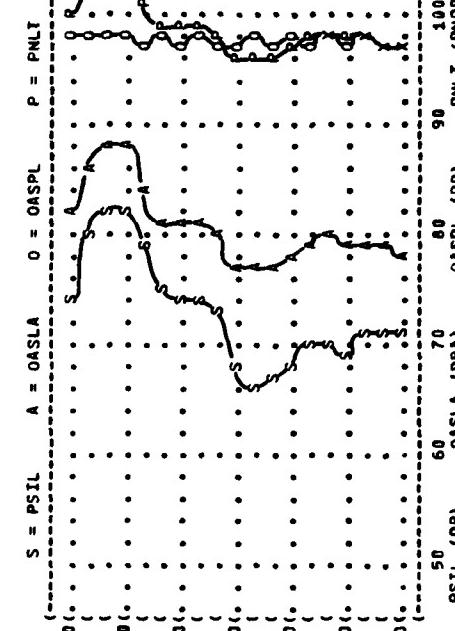
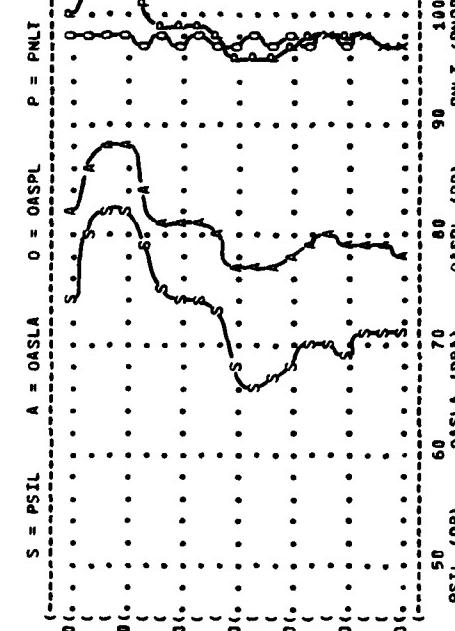
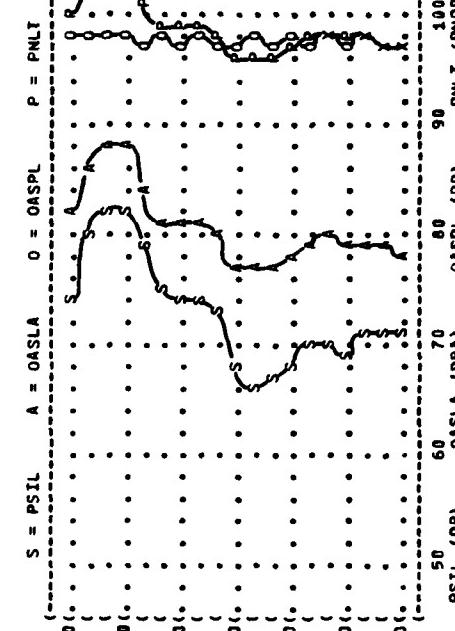
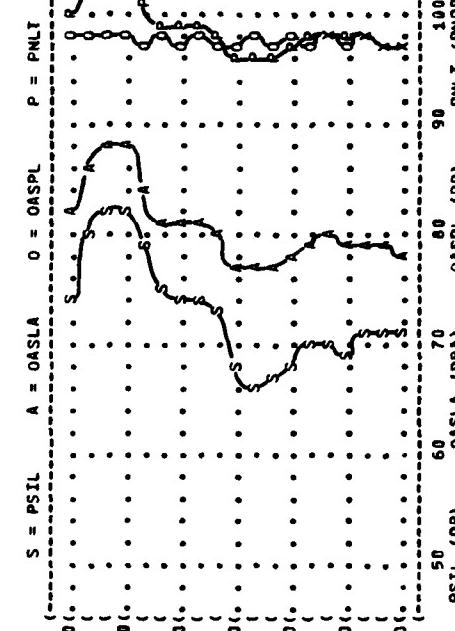
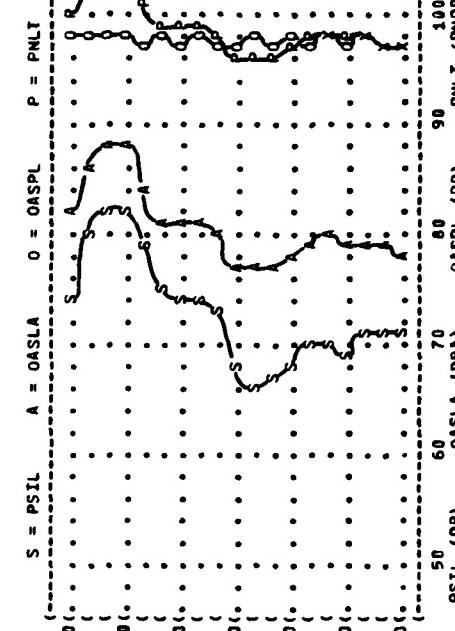
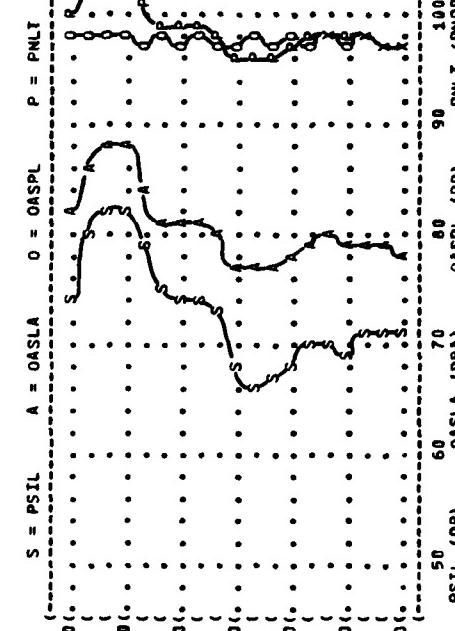
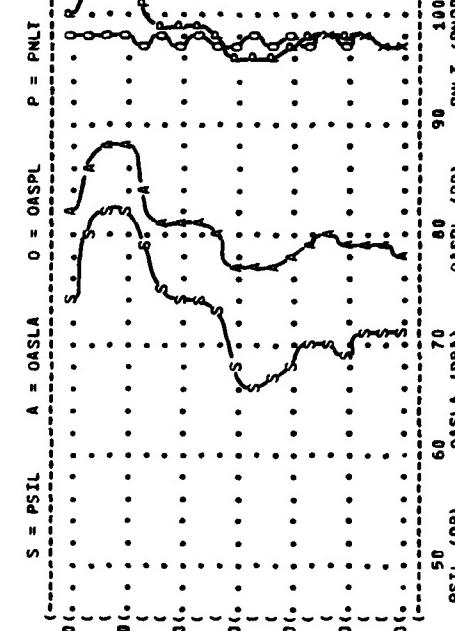
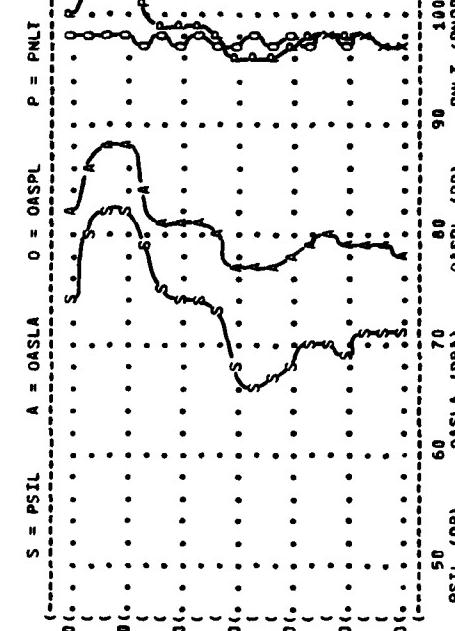
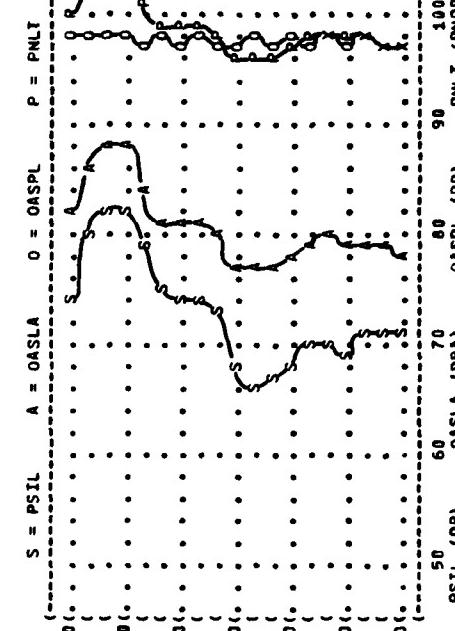
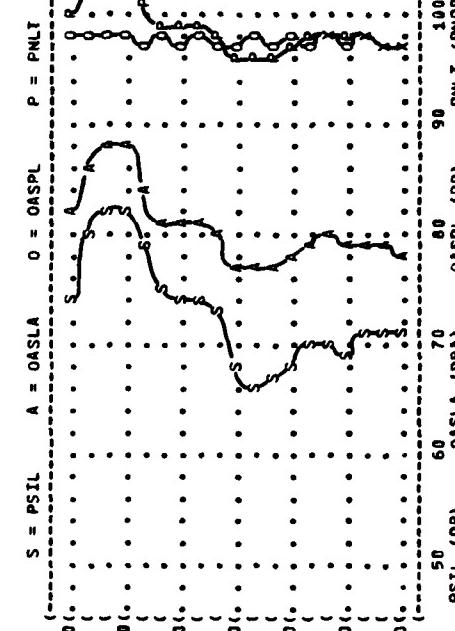
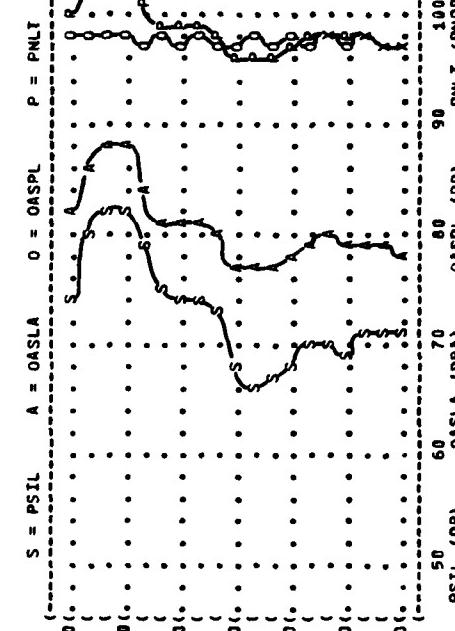
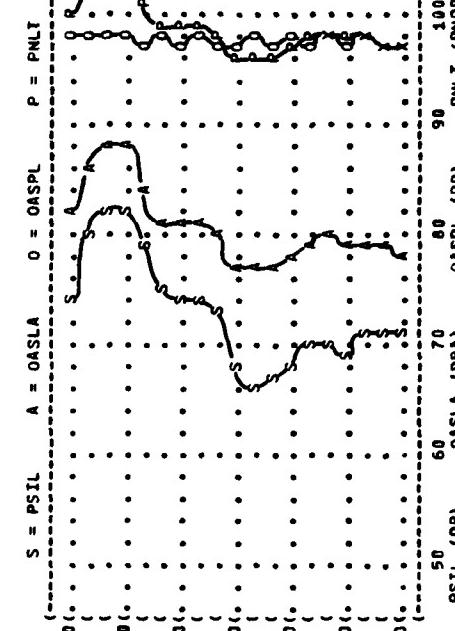
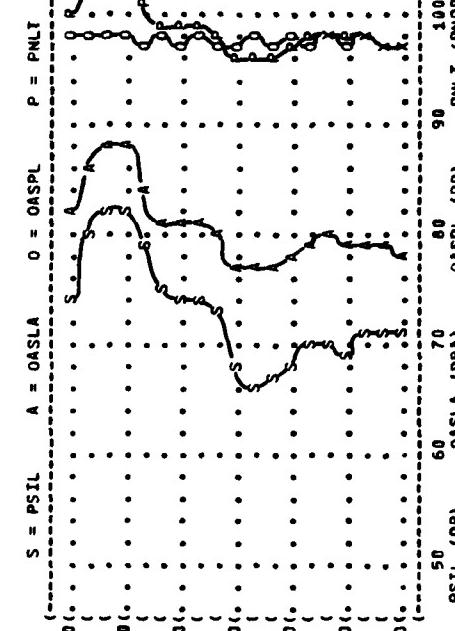
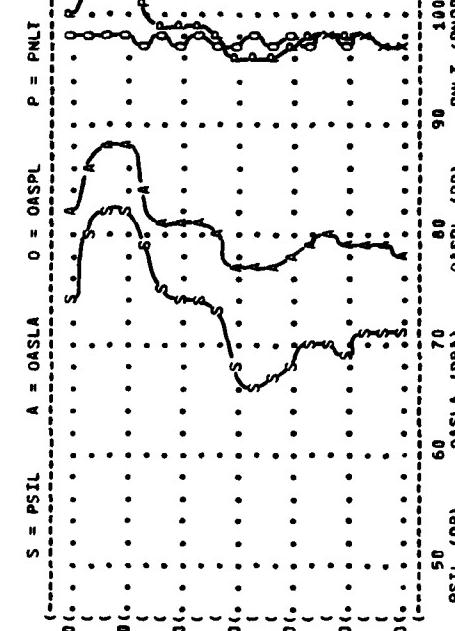
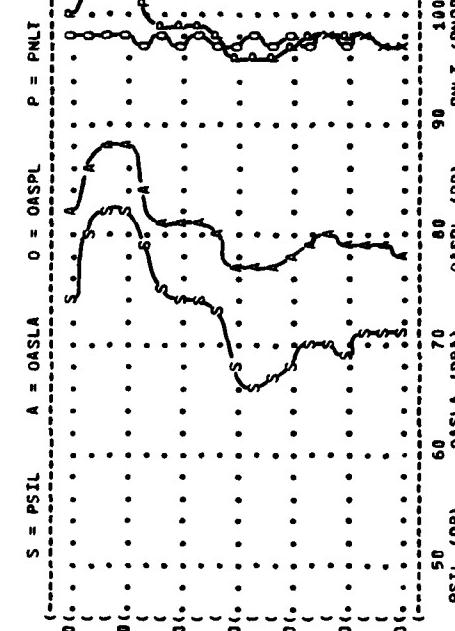
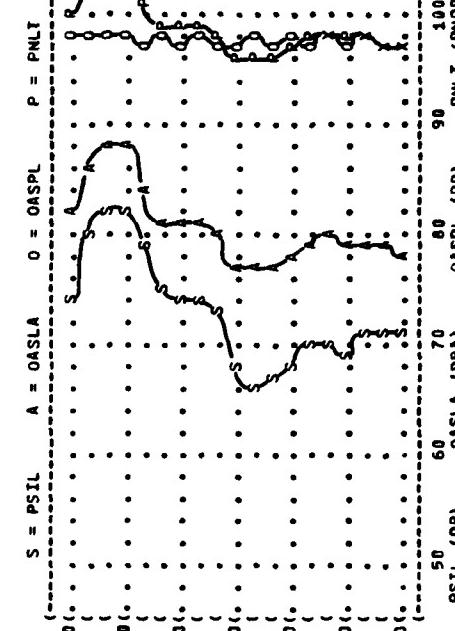
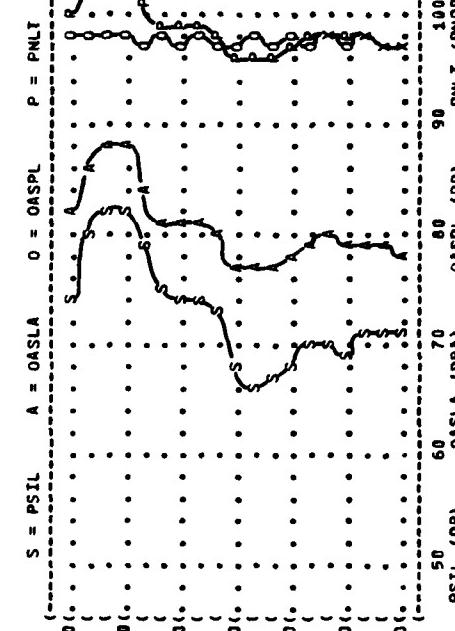
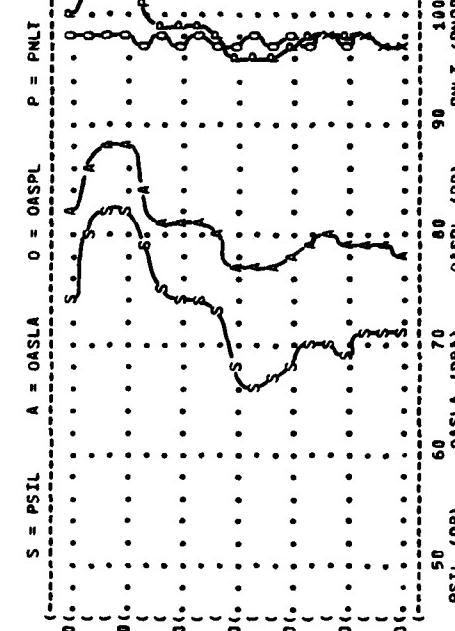
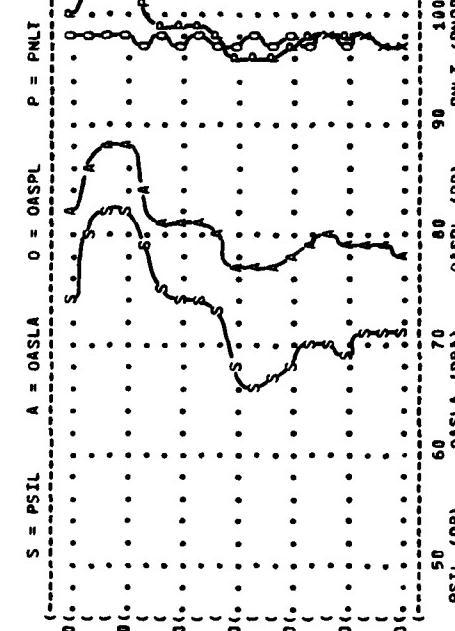
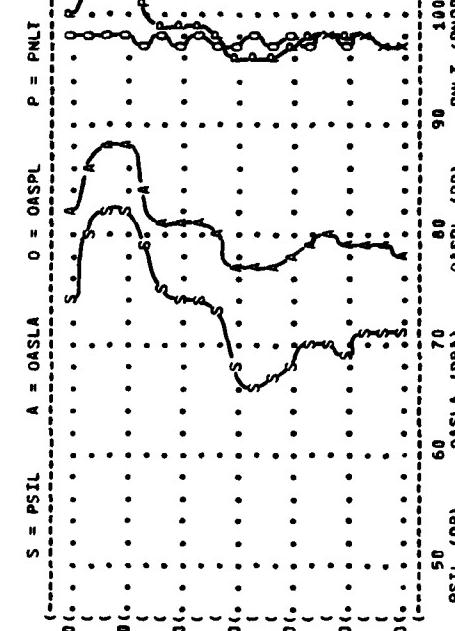
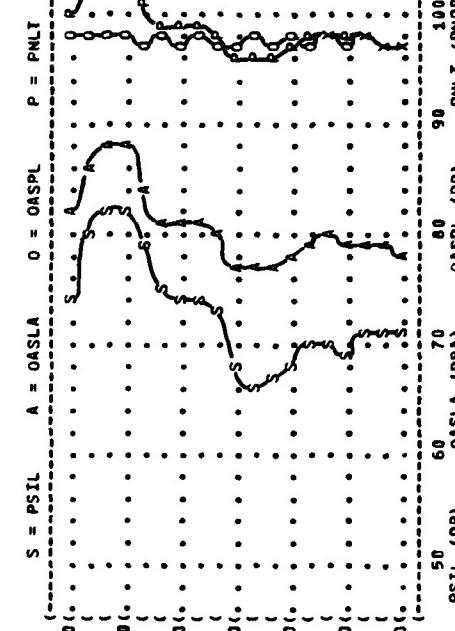
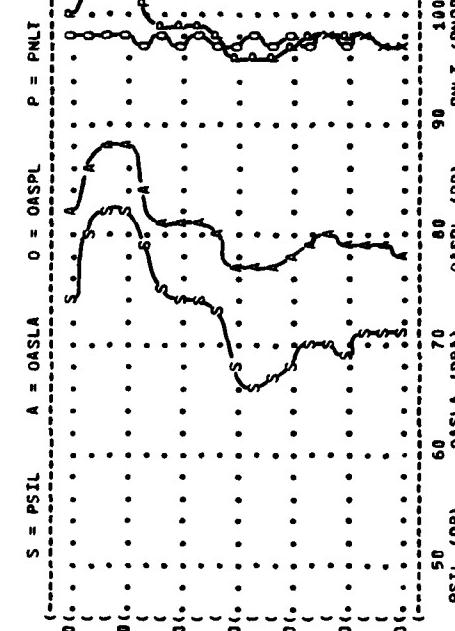
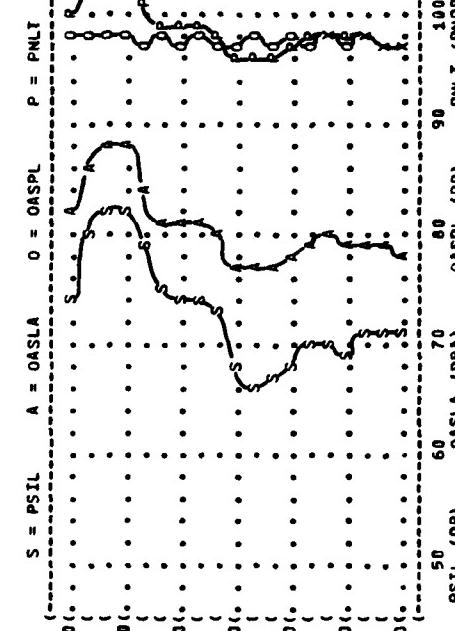
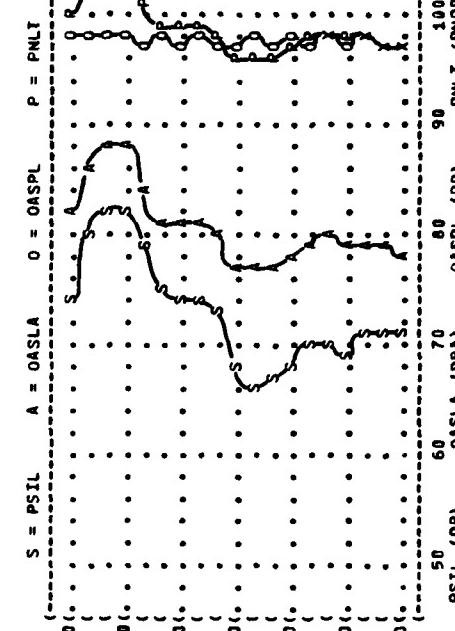
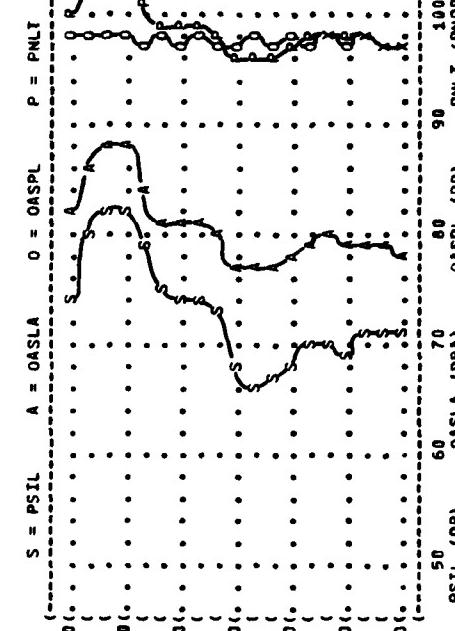
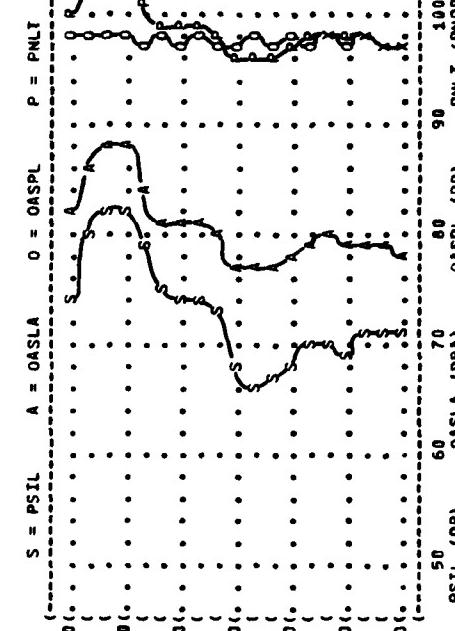
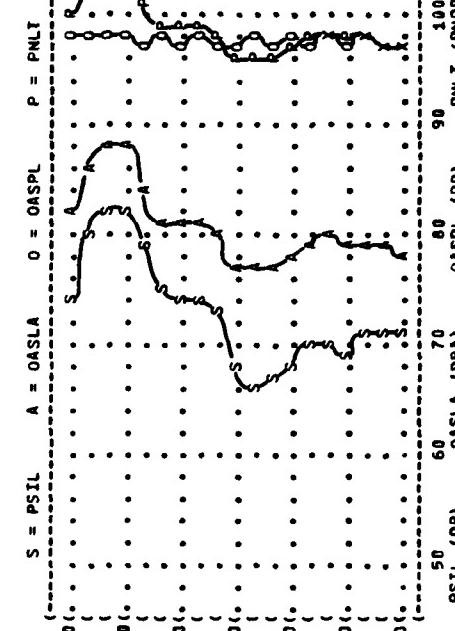
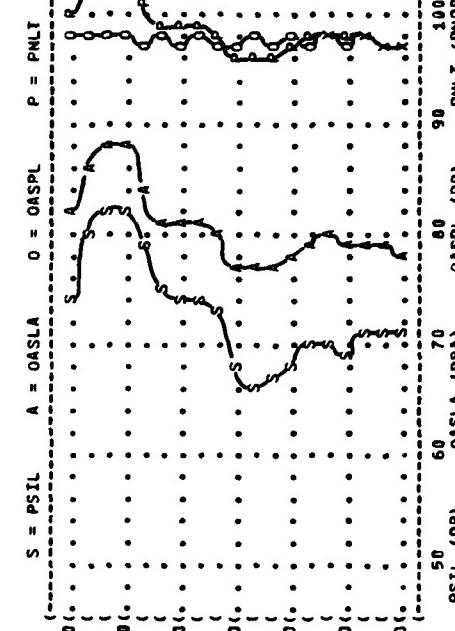
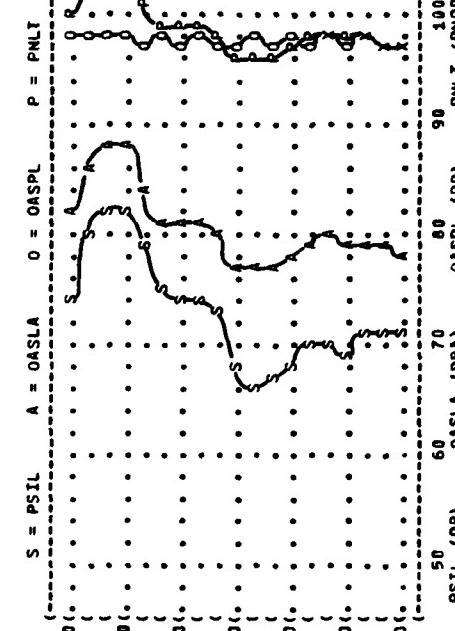
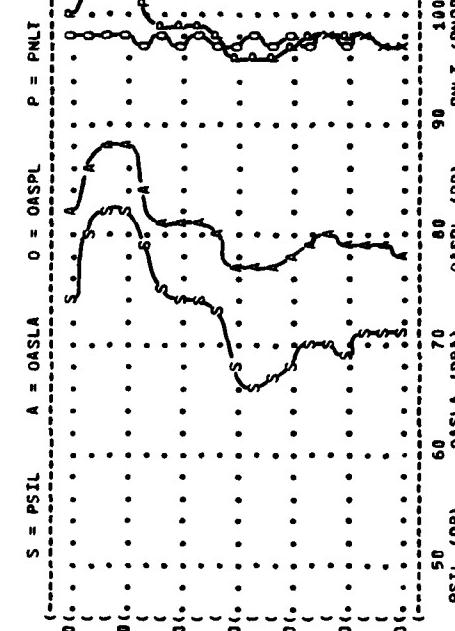
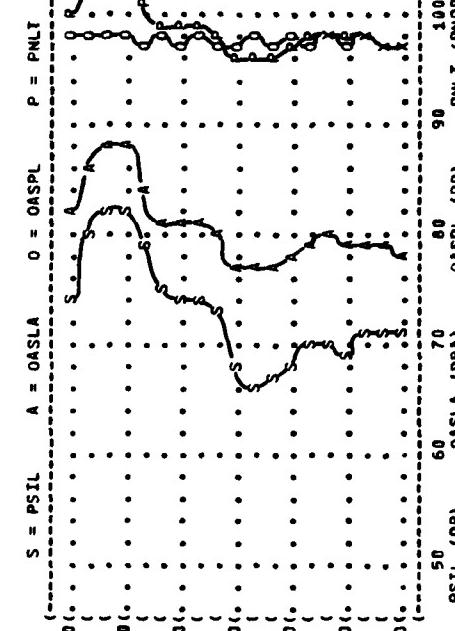
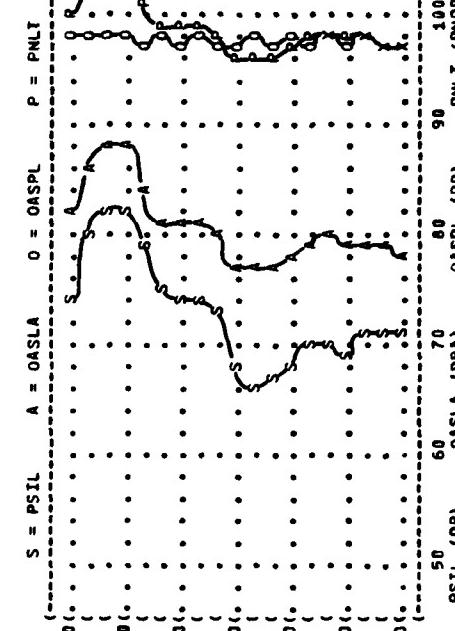
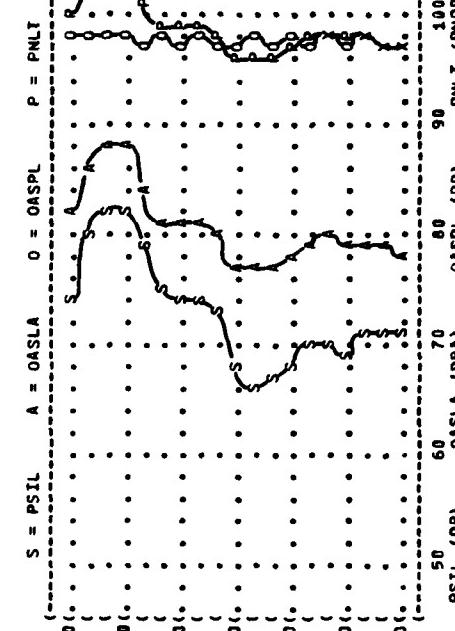
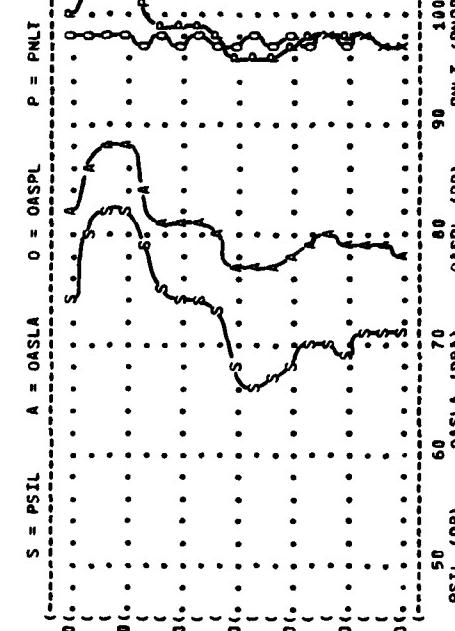
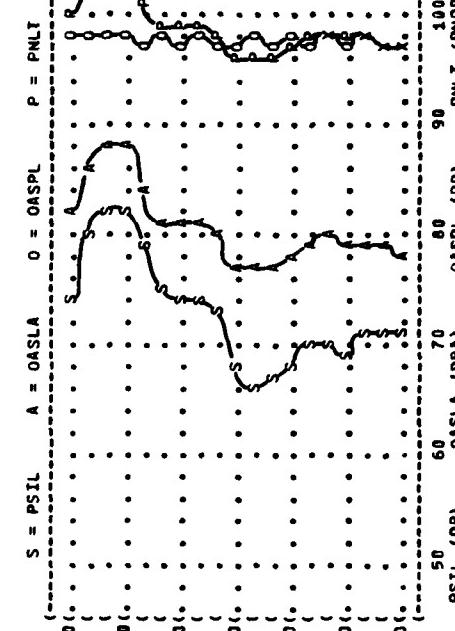
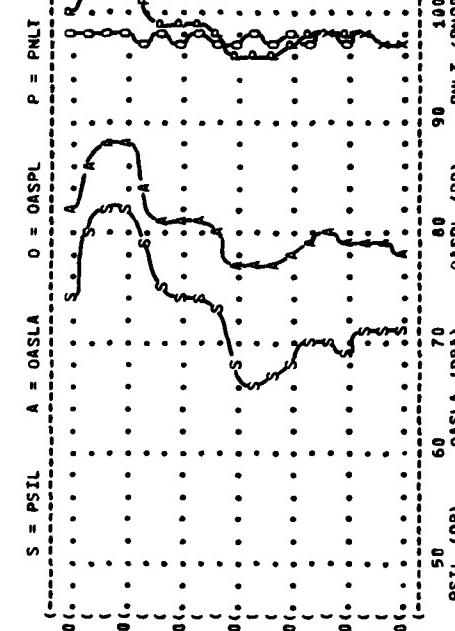
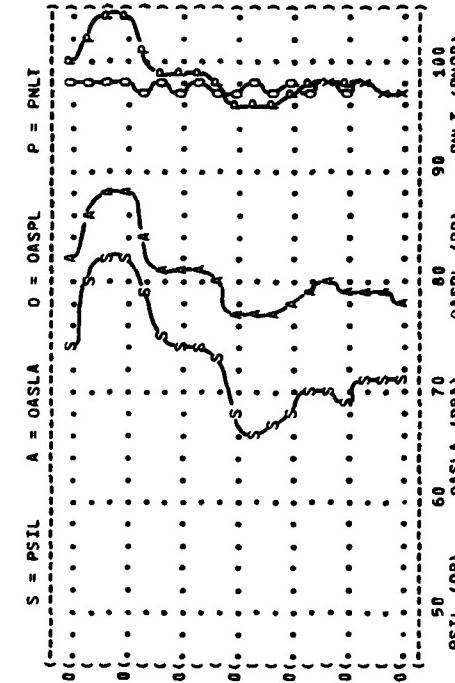
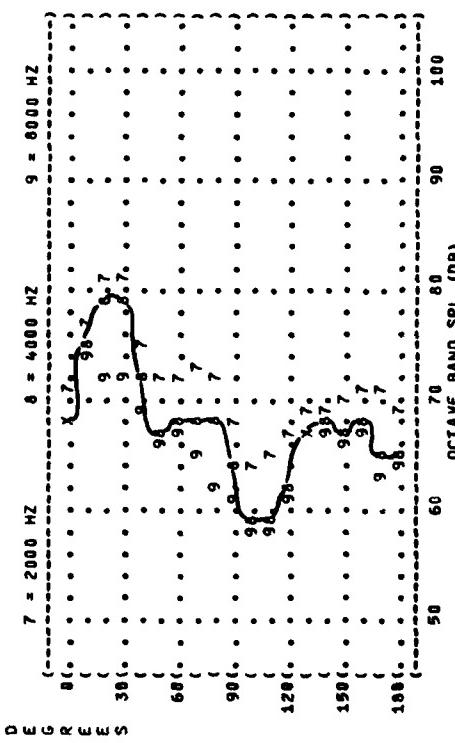


FIGURE 1 OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS (dB)

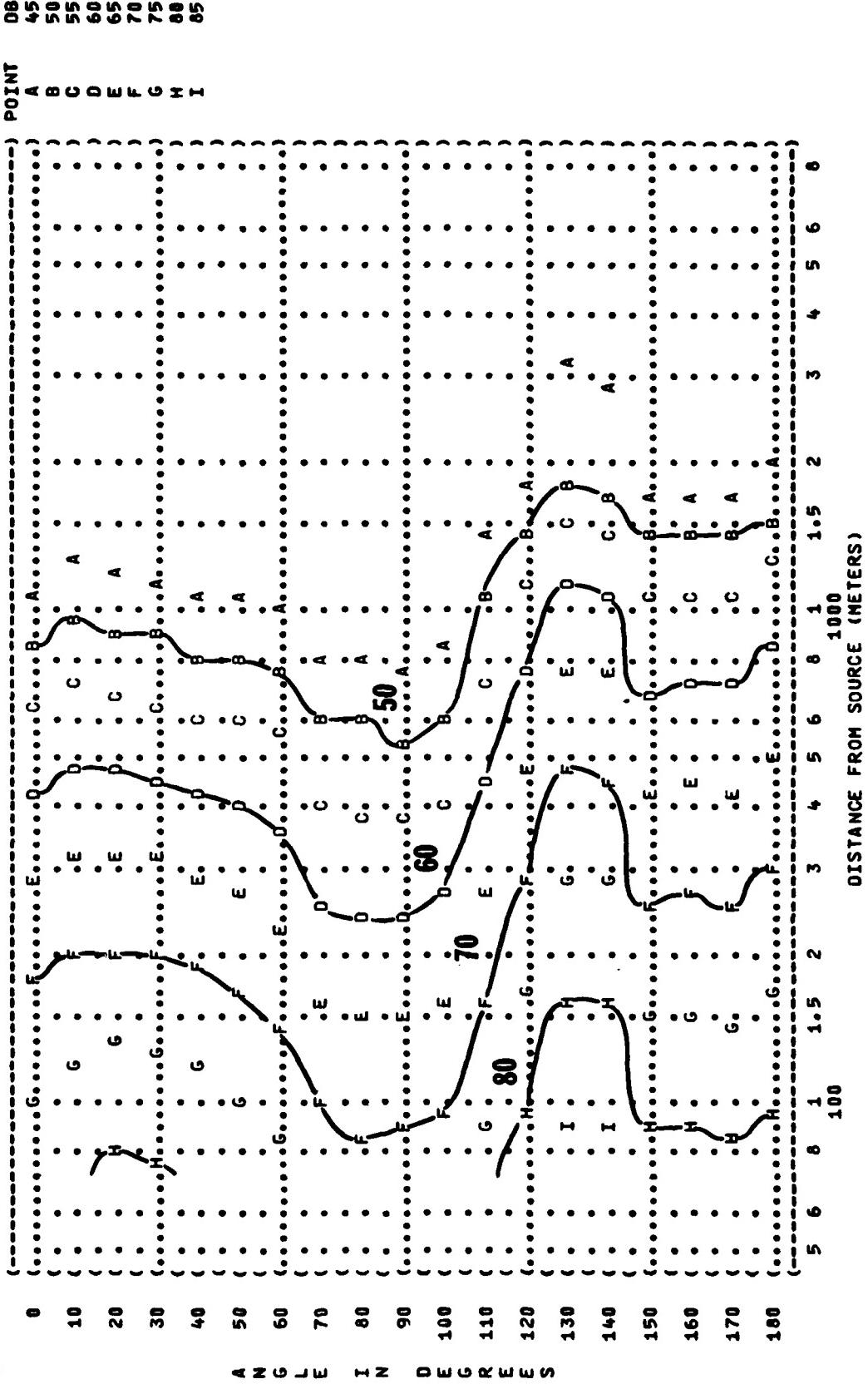


FIGURE 4 EQUAL LEVEL CONTOURS (DB)

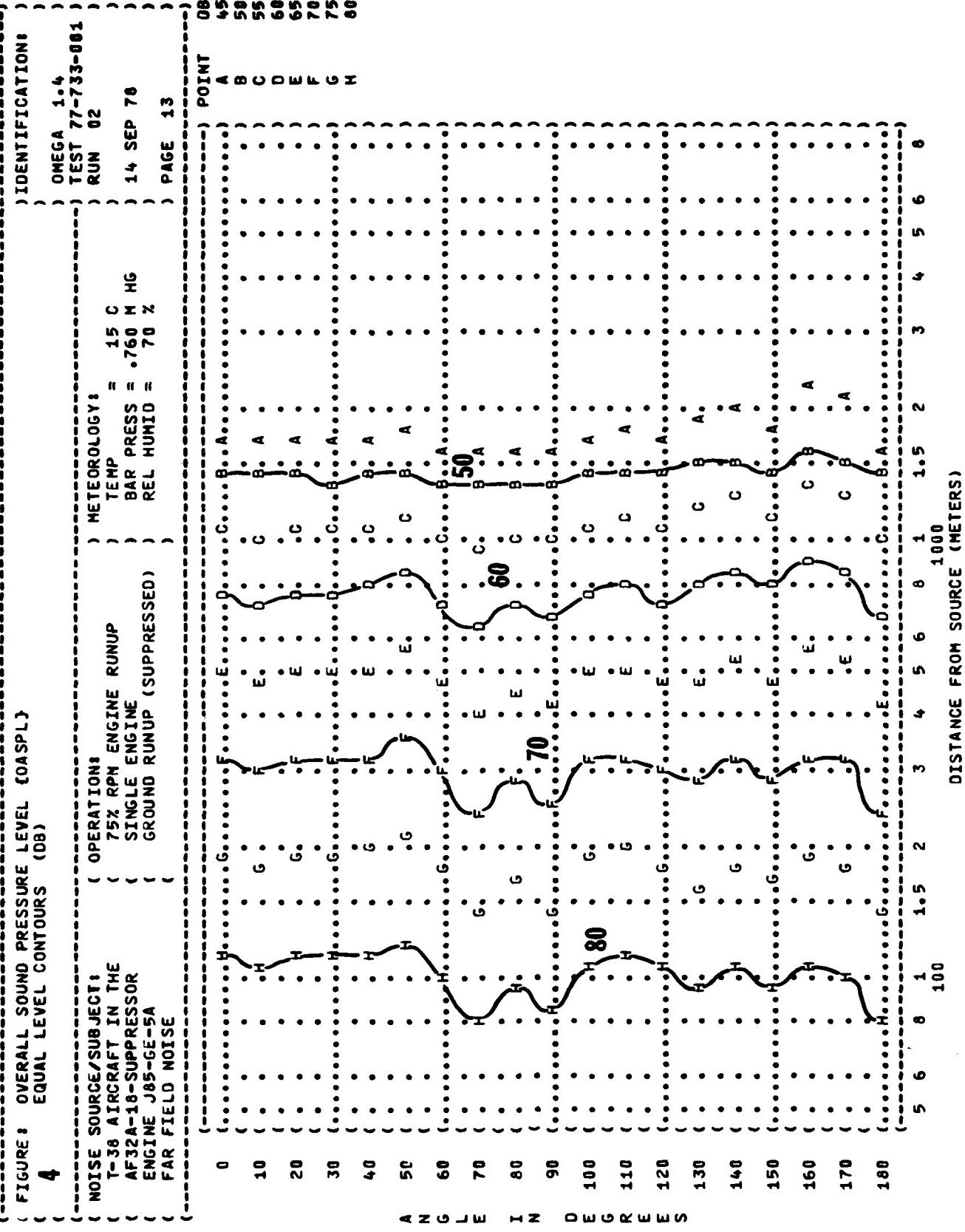
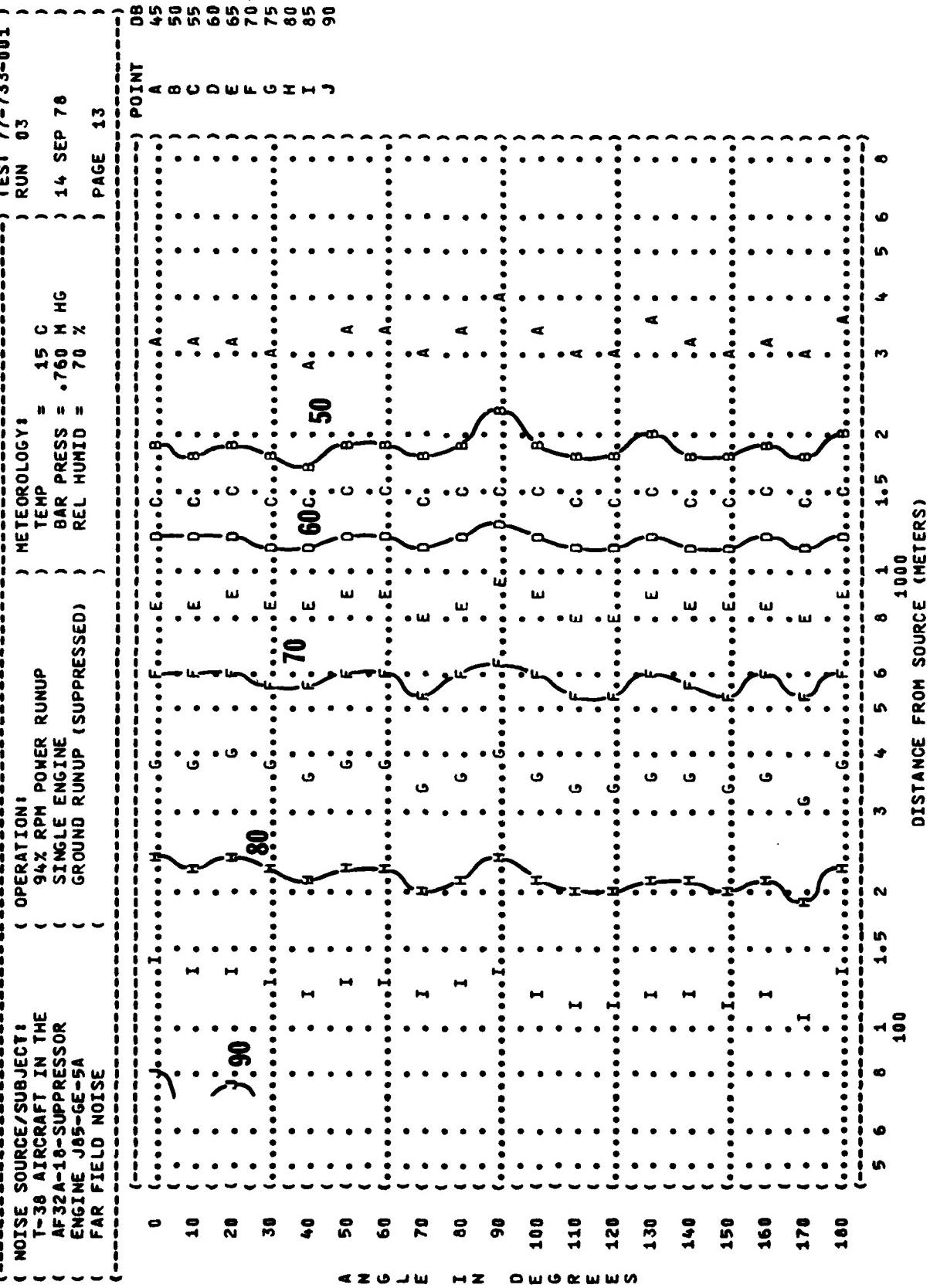


FIGURE 4
OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS (DB)



{ FIGURE : OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

4

{ NOISE SOURCE/SUBJECT : T-38 AIRCRAFT IN THE AF32A-1A-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE

{ OPERATION : MILITARY POWER 99.5 % RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

{ METEOROLOGY : TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

PAGE 13

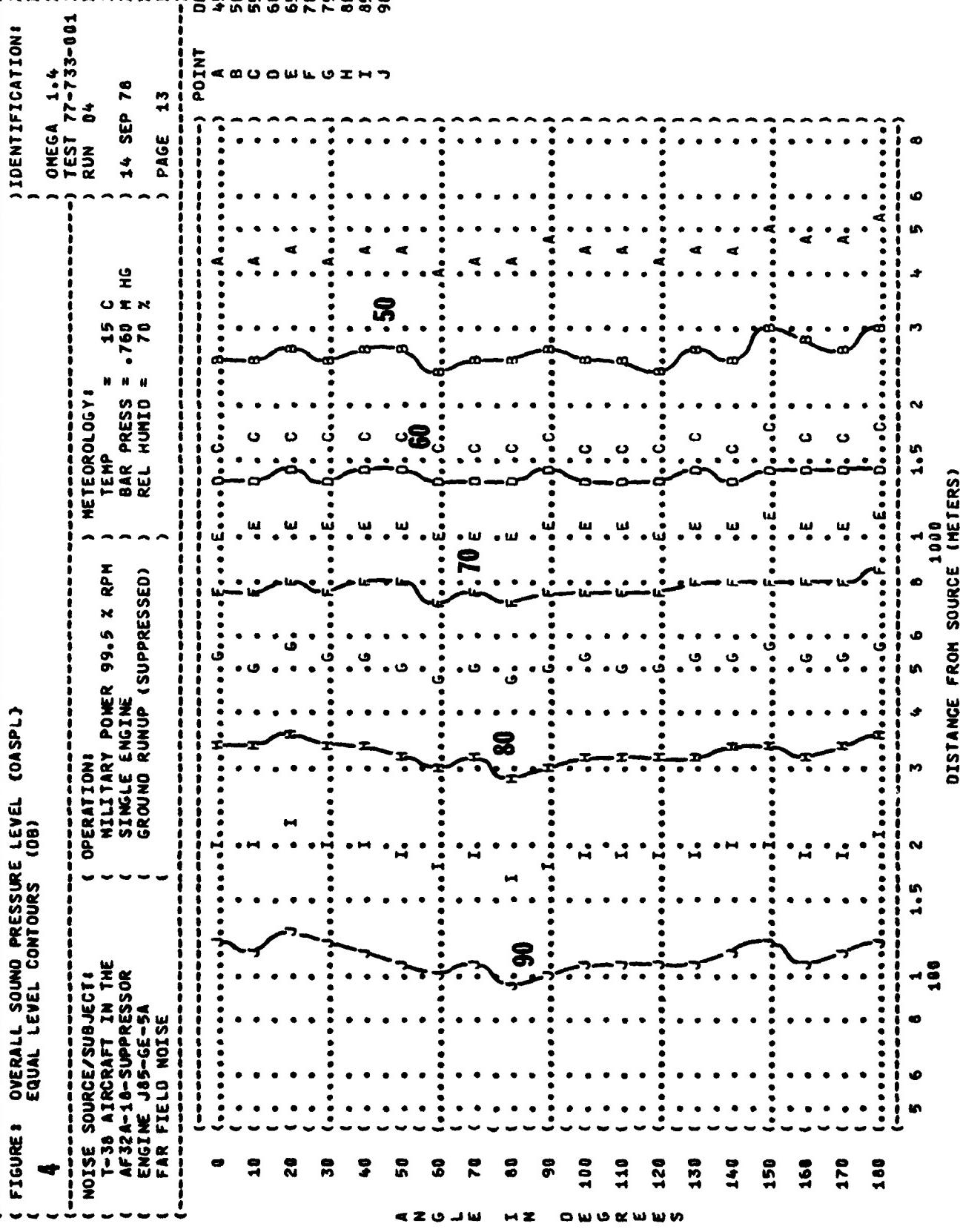
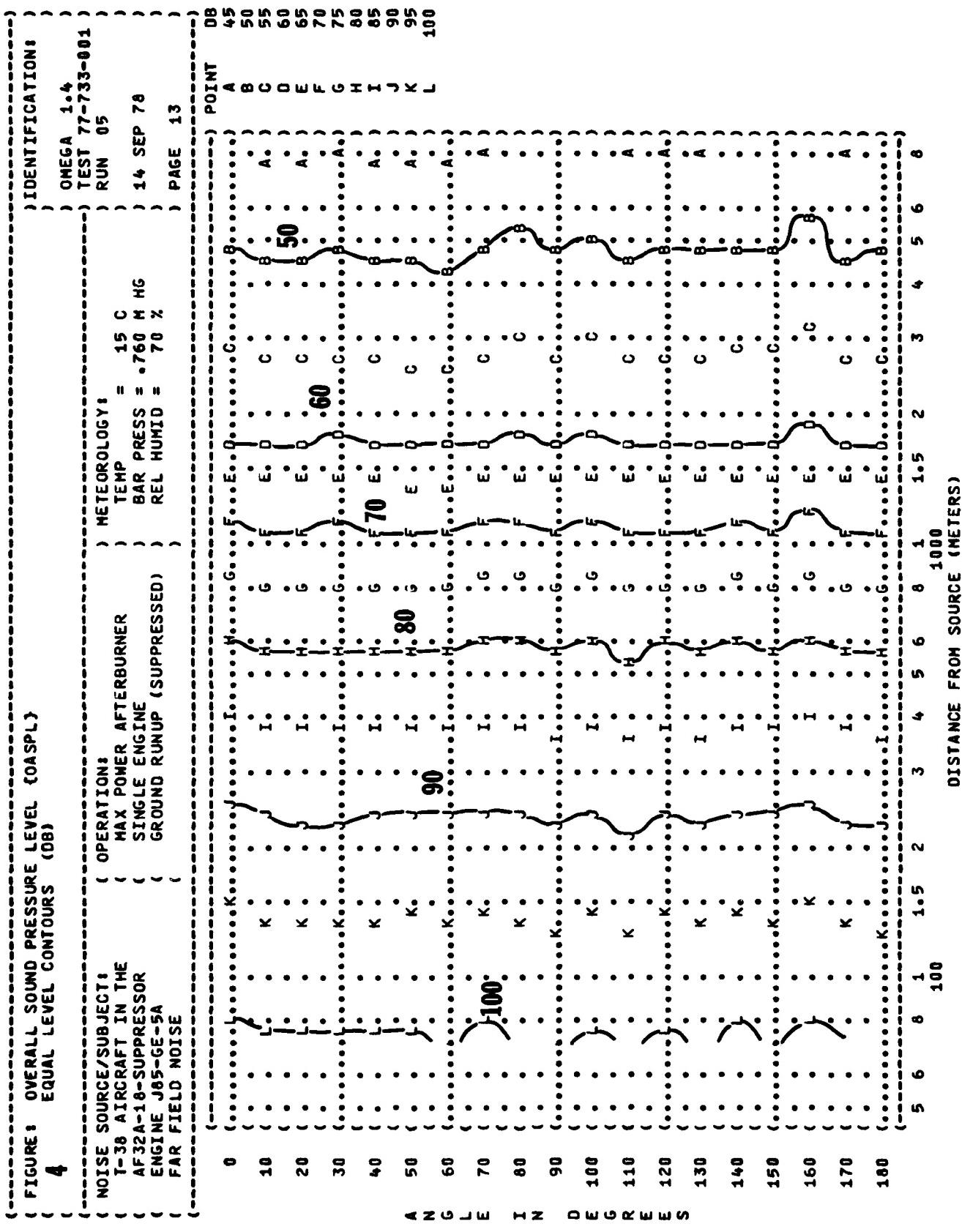


FIGURE 4 OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS



(FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 5 EQUAL LEVEL CONTOURS (OASLC)

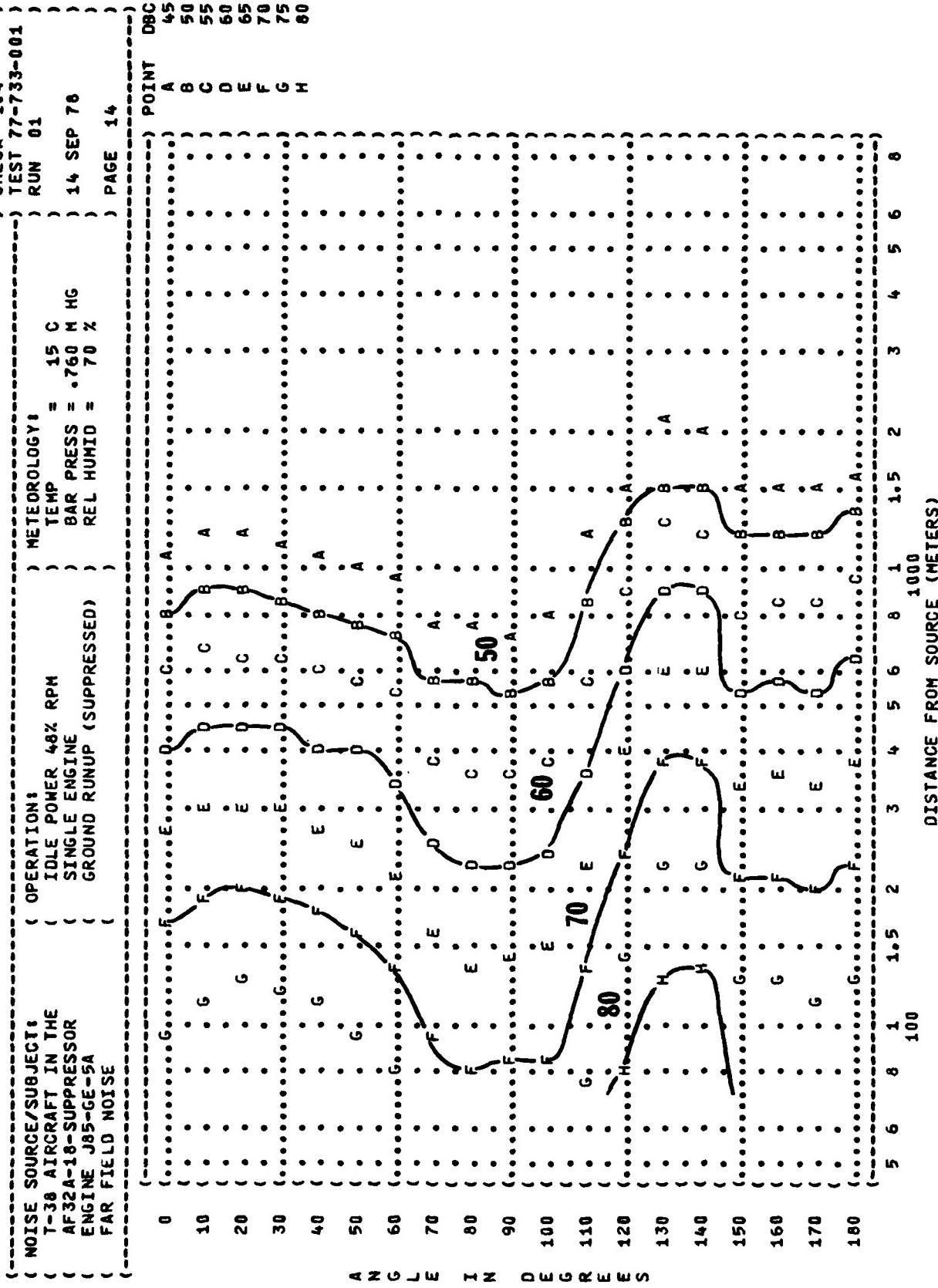


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

5

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-1B-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
75% RPM ENGINE RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 H HG
REL HUMID = 70 %

TEST 77-733-001
RUN 02
14 SEP 78
PAGE 14

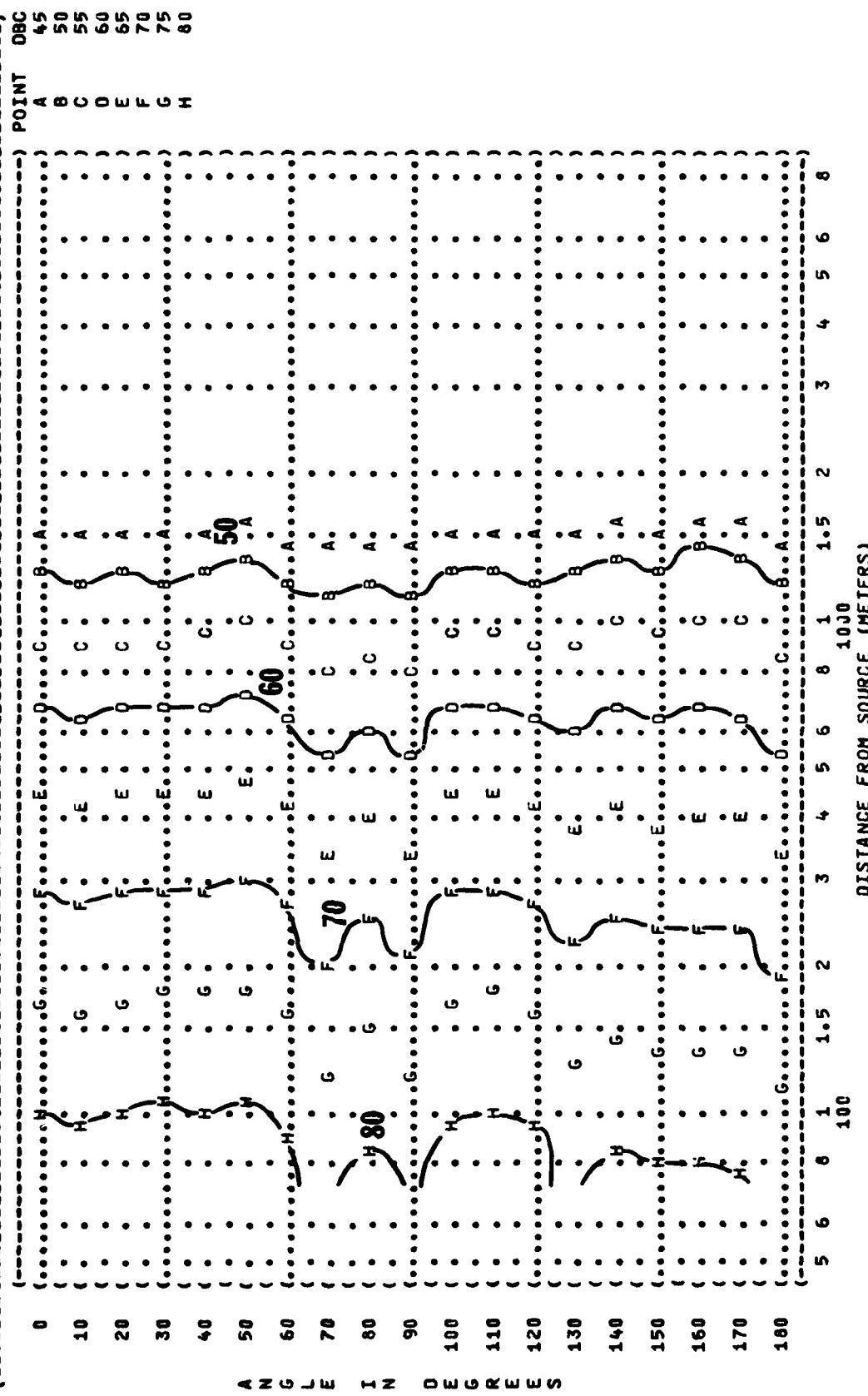
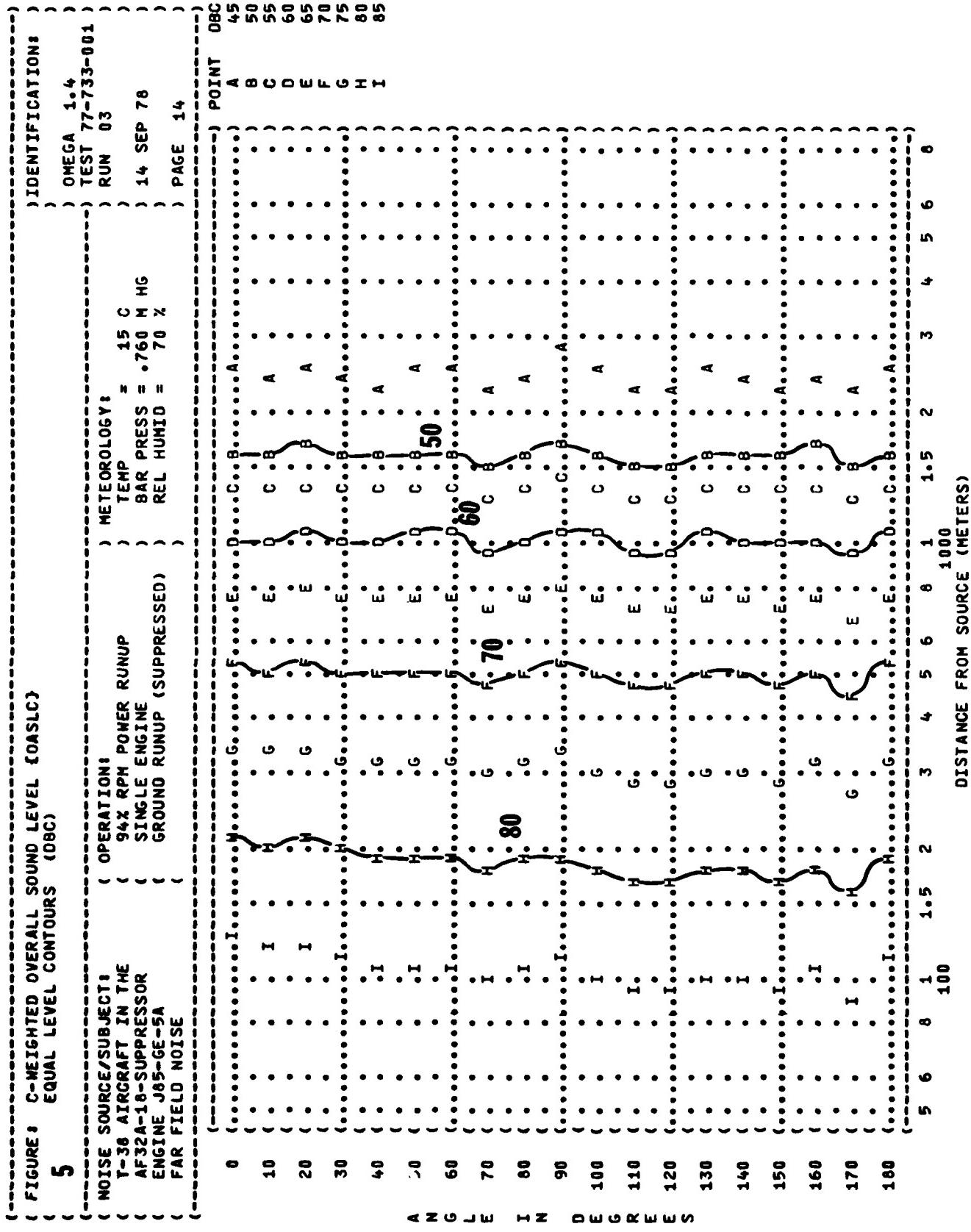


FIGURE 5 C-WEIGHTED OVERALL SOUND LEVEL (DBC)
EQUAL LEVEL CONTOURS (DBC)



(FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 5. EQUAL LEVEL CONTOURS (OBC),

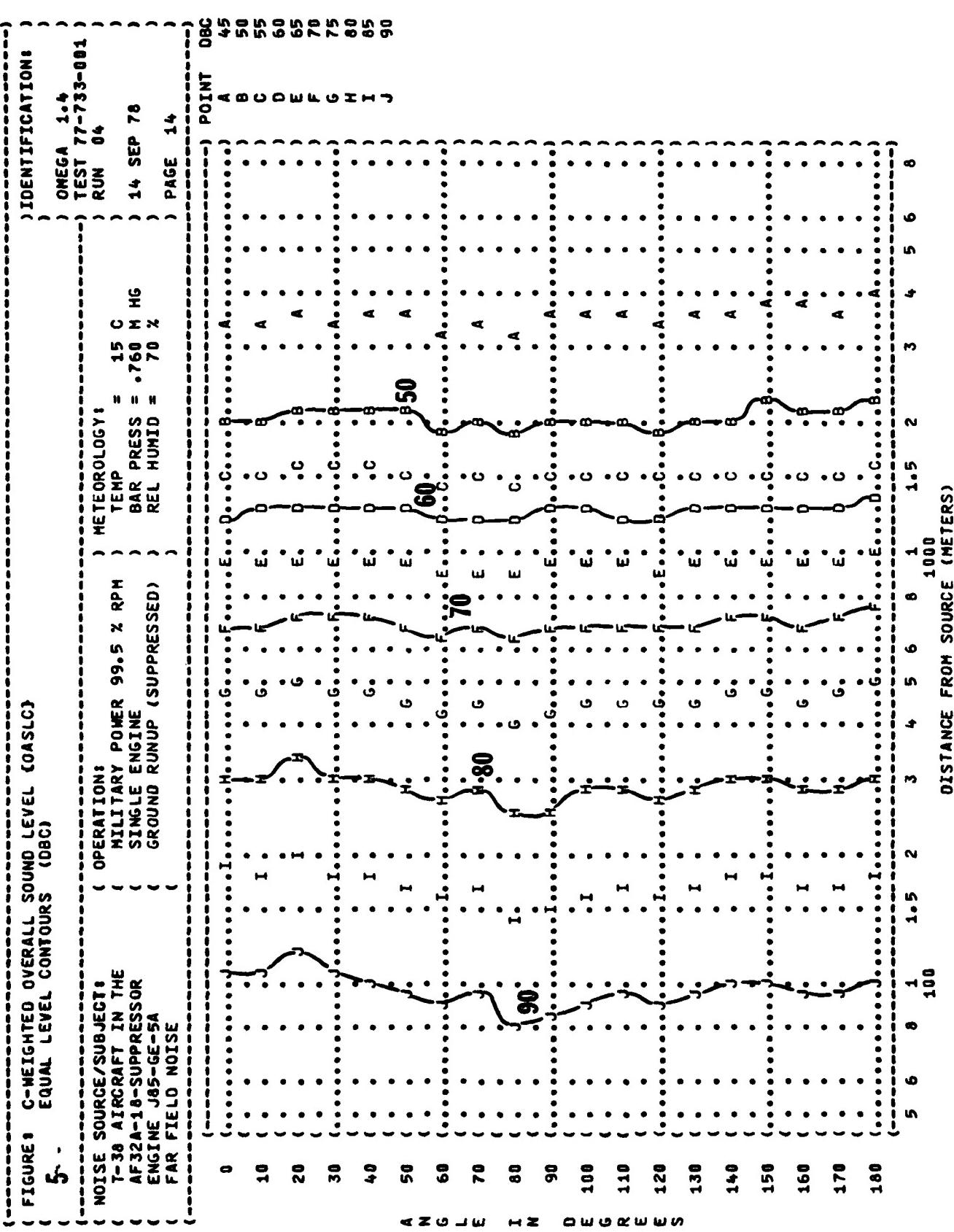


FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
5 EQUAL LEVEL CONTOURS (OBC)

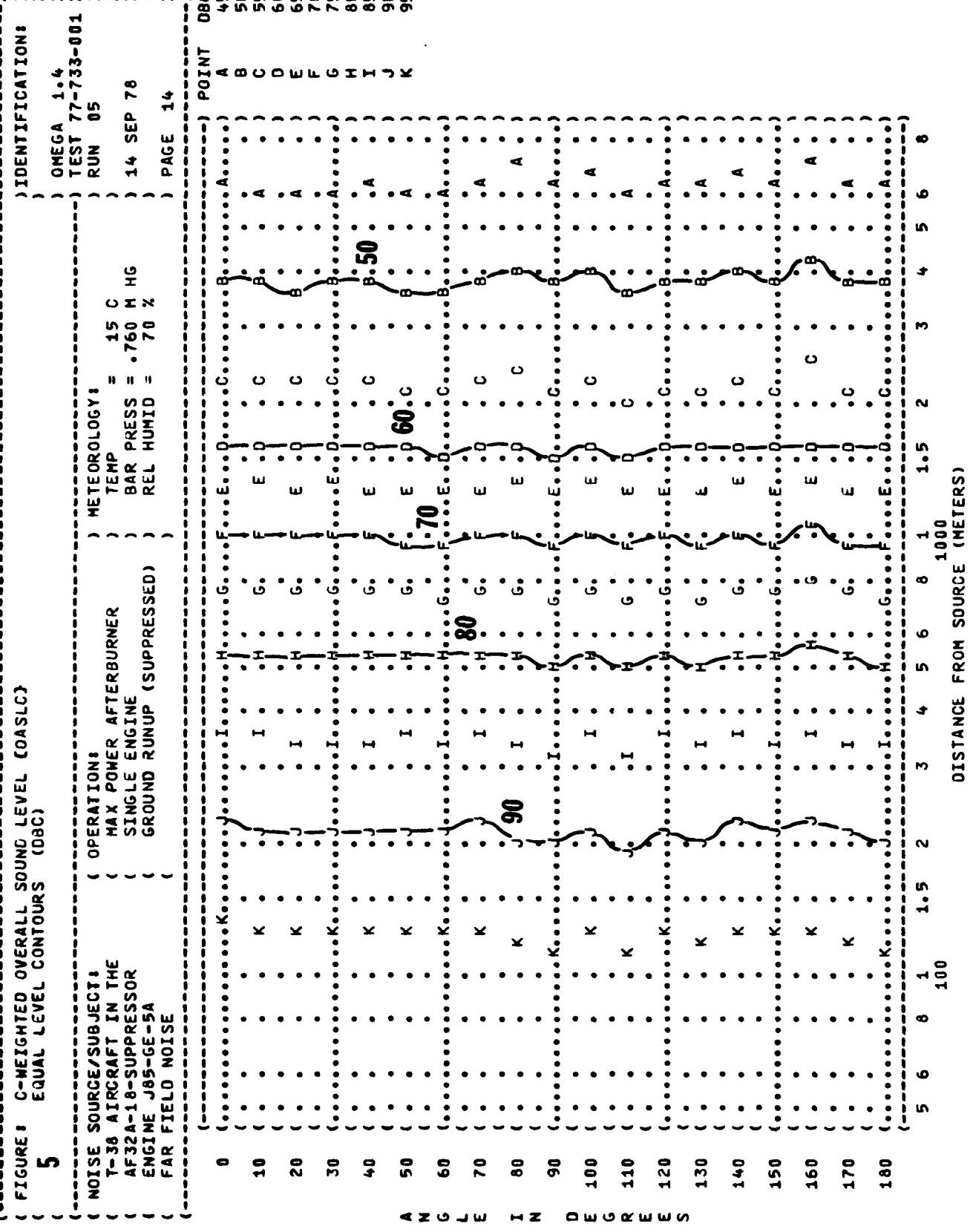


FIGURE 1 A-WEIGHTED OVERALL SOUND LEVEL (DBA)
6 EQUAL LEVEL CONTOURS (DBA)

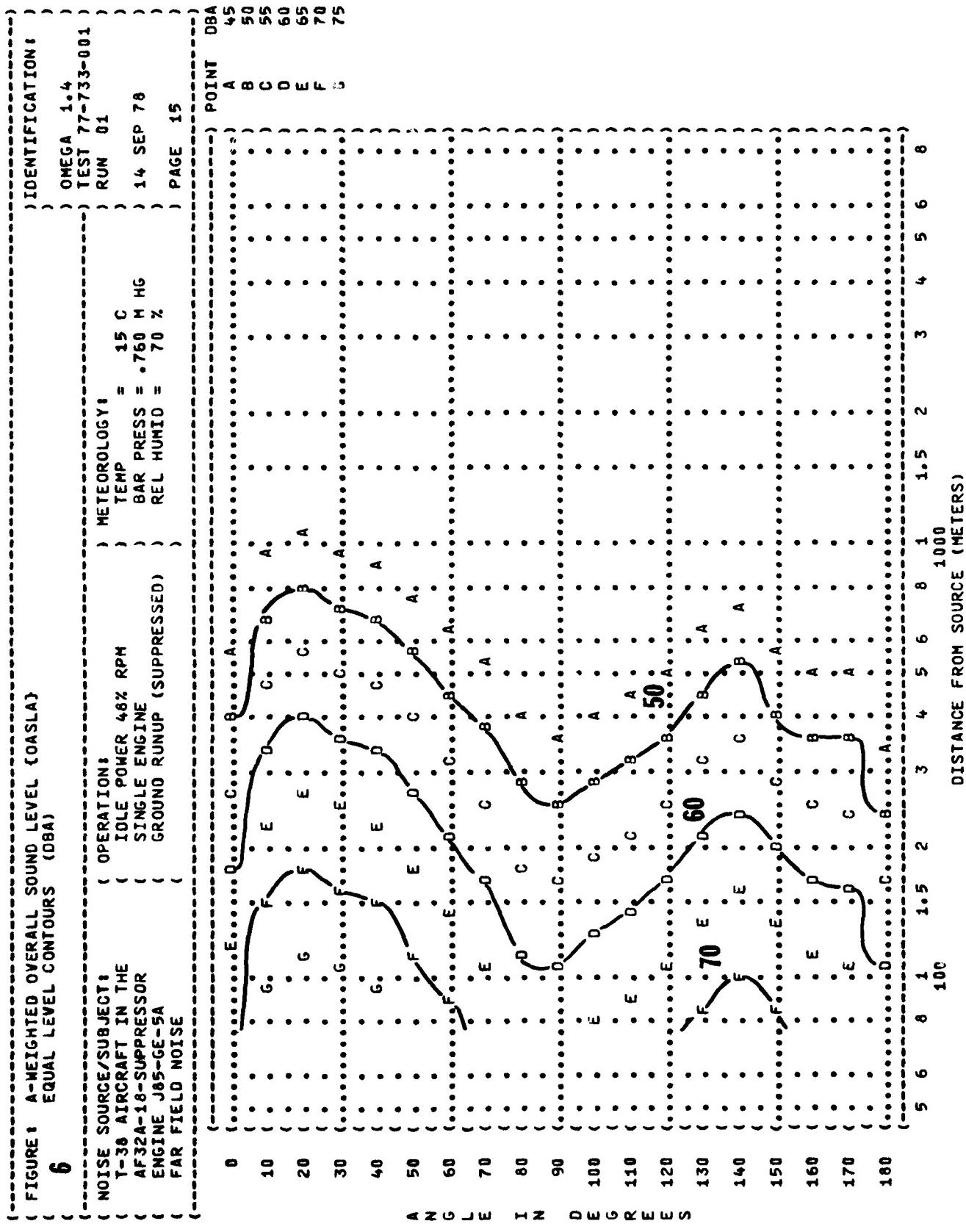
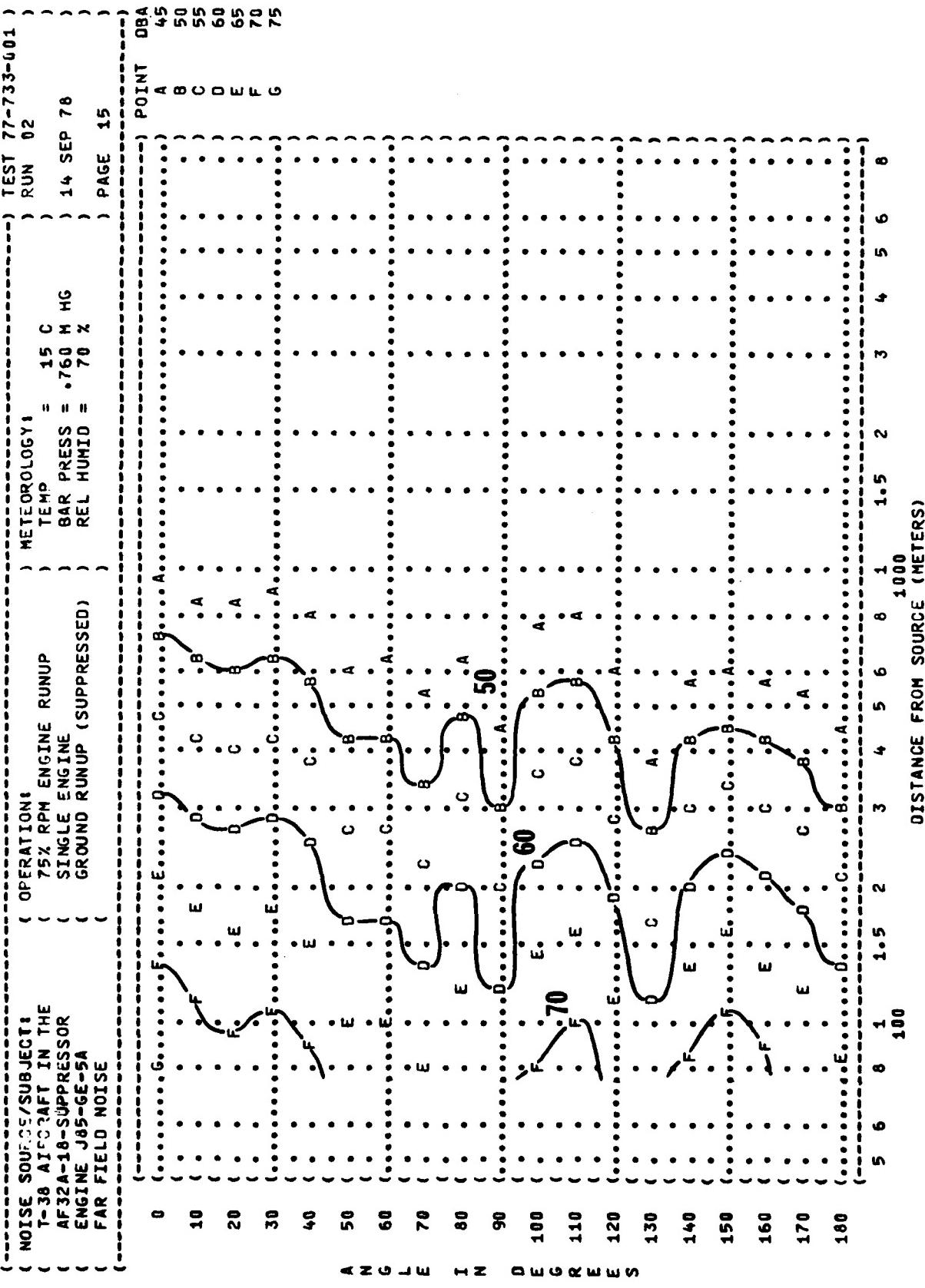


FIGURE 1 A-WEIGHTED OVERALL SOUND LEVEL (OBA)
6 EQUAL LEVEL CONTOURS (OBA)



(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (DBA)
6 EQUAL LEVEL CONTOURS (DBA)

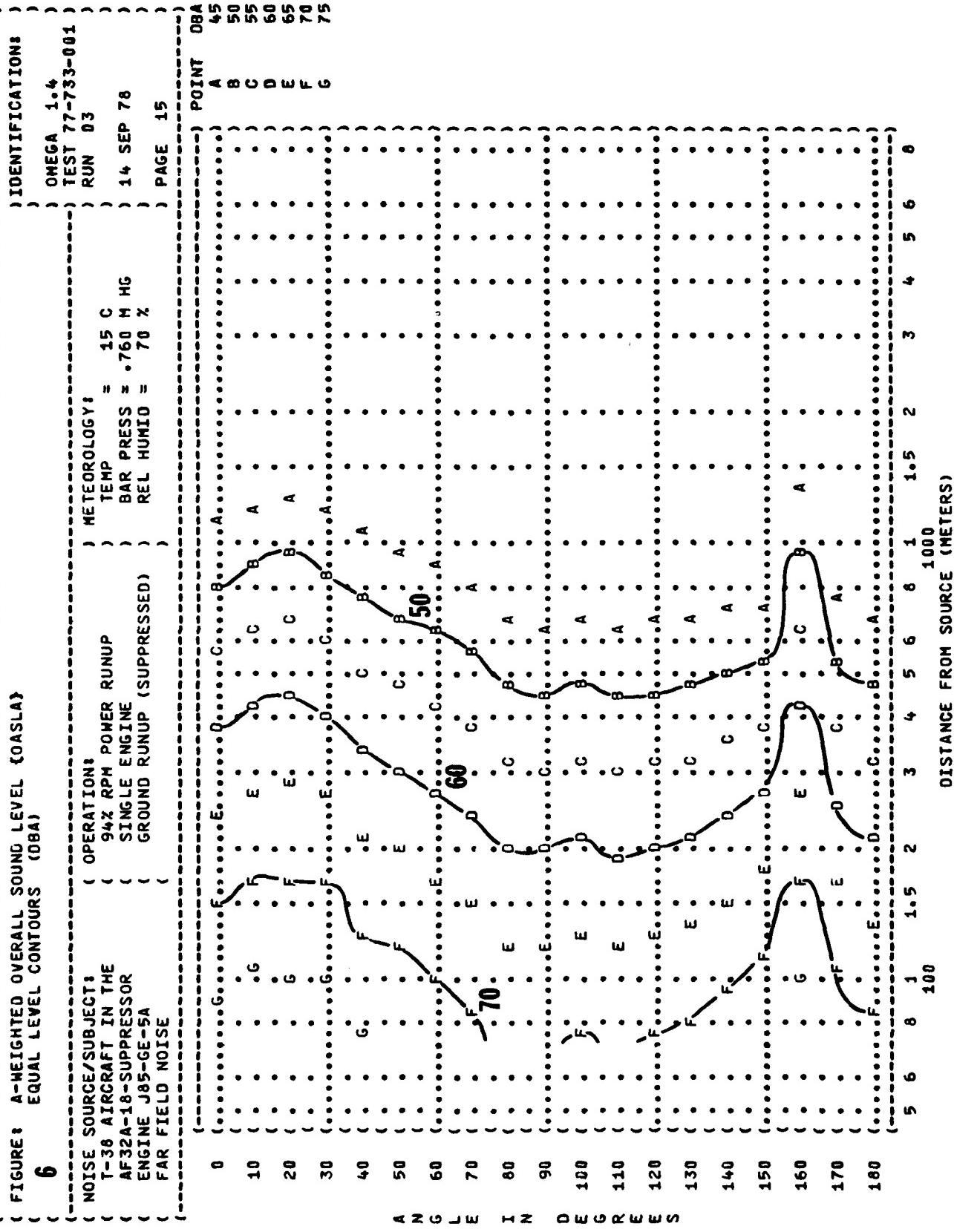


FIGURE 6 EQUAL LEVEL CONTOURS (DBA)

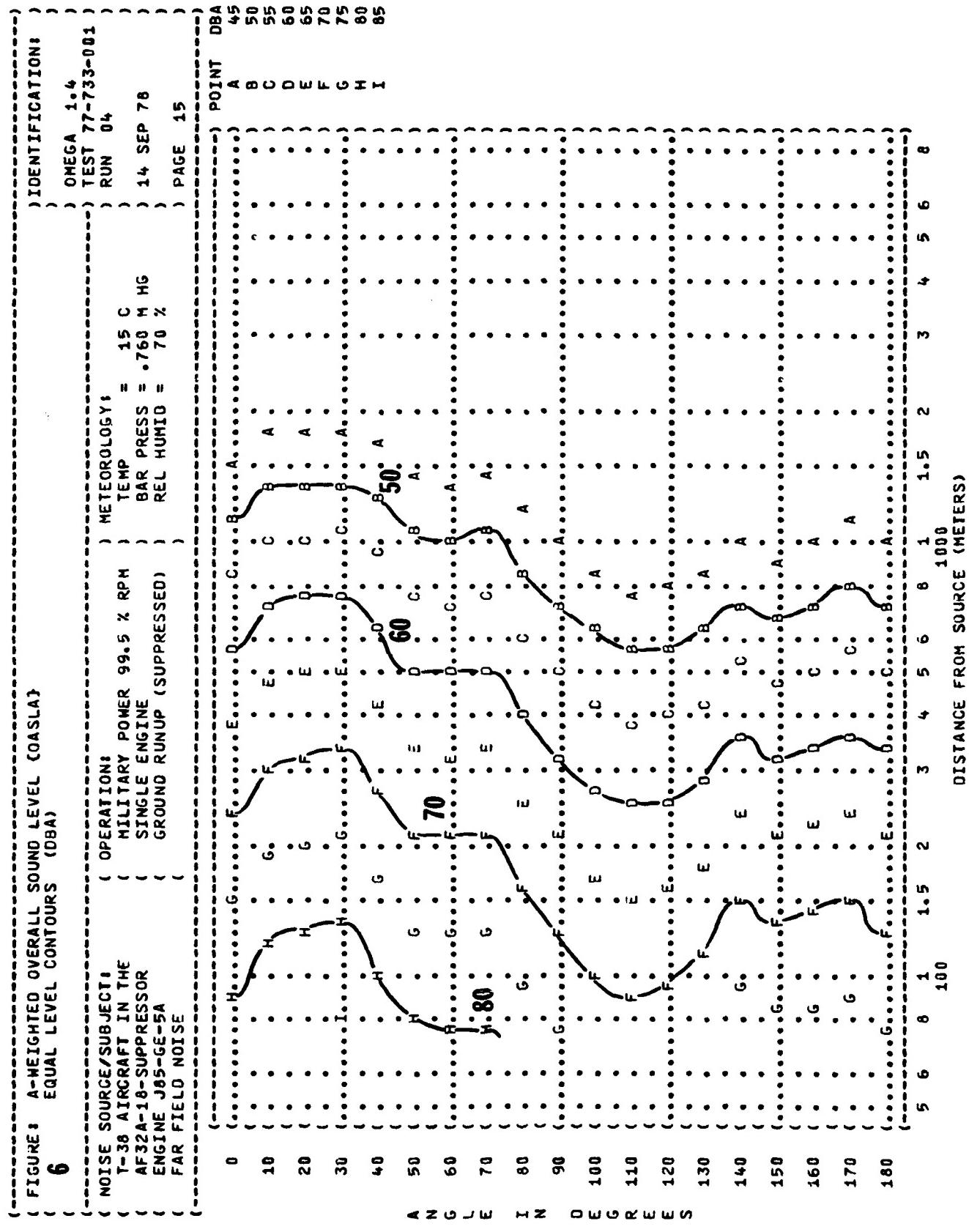


FIGURE 1 A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
6 EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

TEST 77-733-001
RUN 05
14 SEP 78

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IDENTIFICATION:
OMEGA 1.4

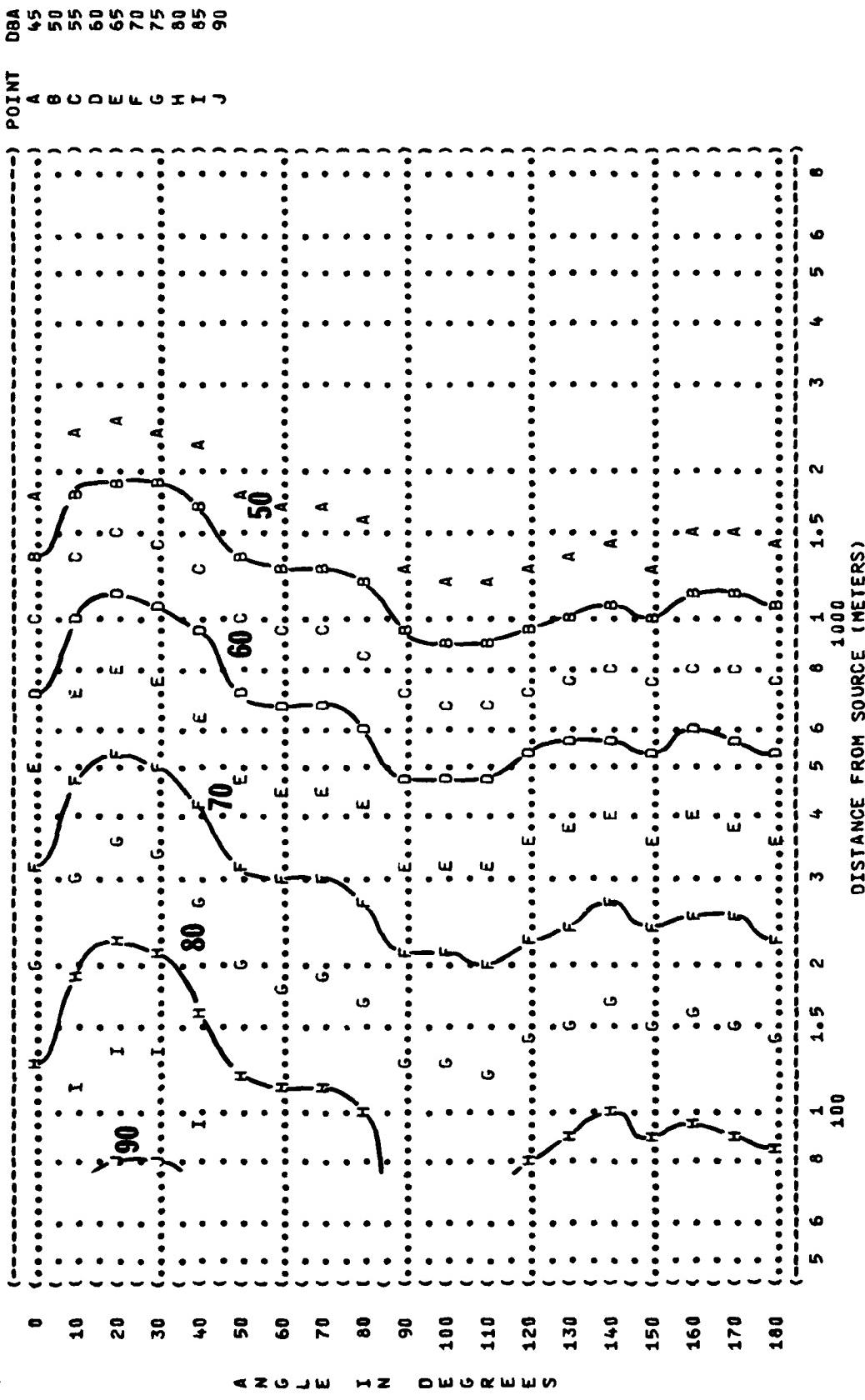


FIGURE 1 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

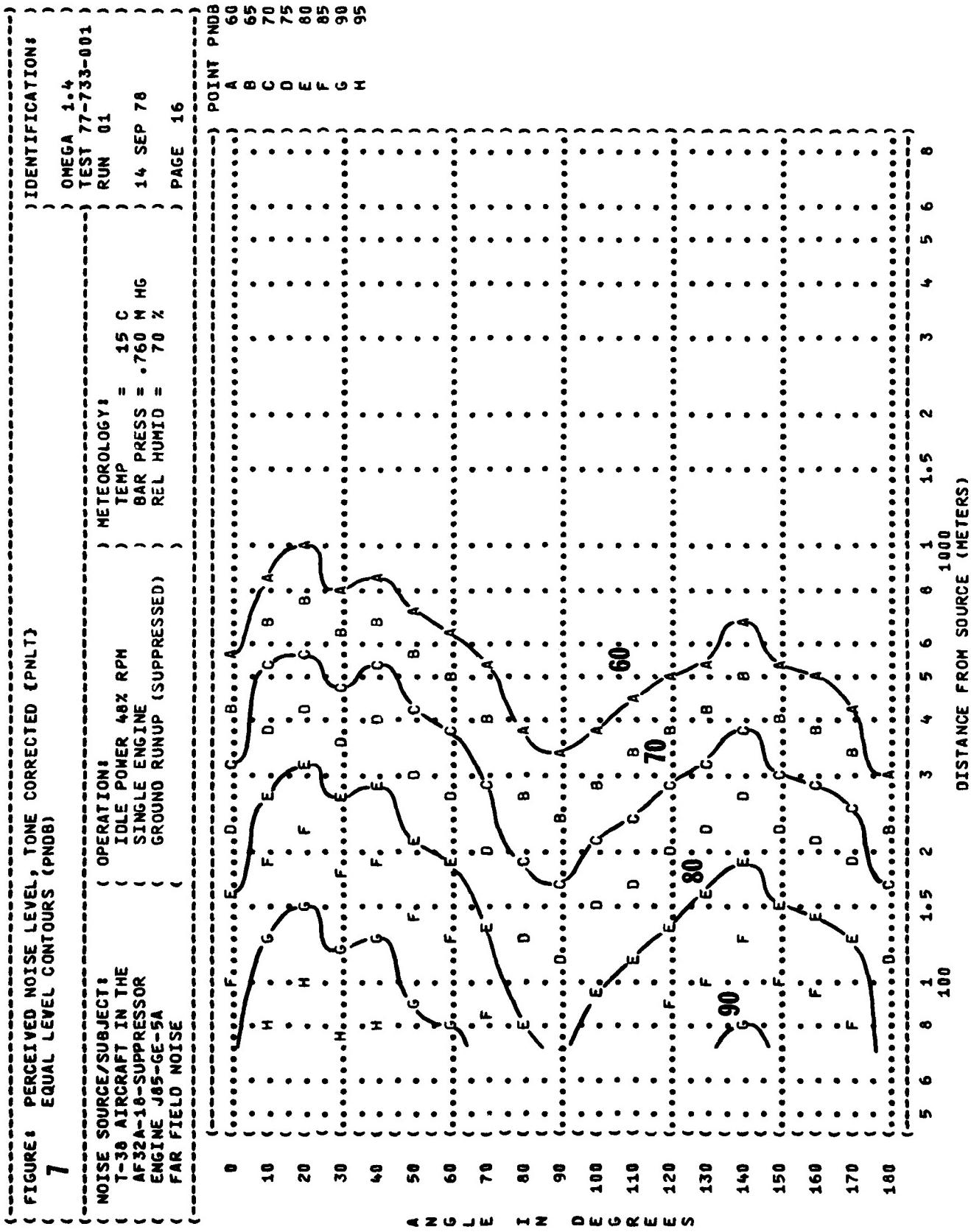


FIGURE 1 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)

7

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-1A-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
75% RPM ENGINE RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

IDENTIFICATIONS:

OMEGA 1-4

TEST 77-733-001

RUN 02

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

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METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

POINT PNDB

A 60
B 65
C 70
D 75
E 80
F 85
G 90

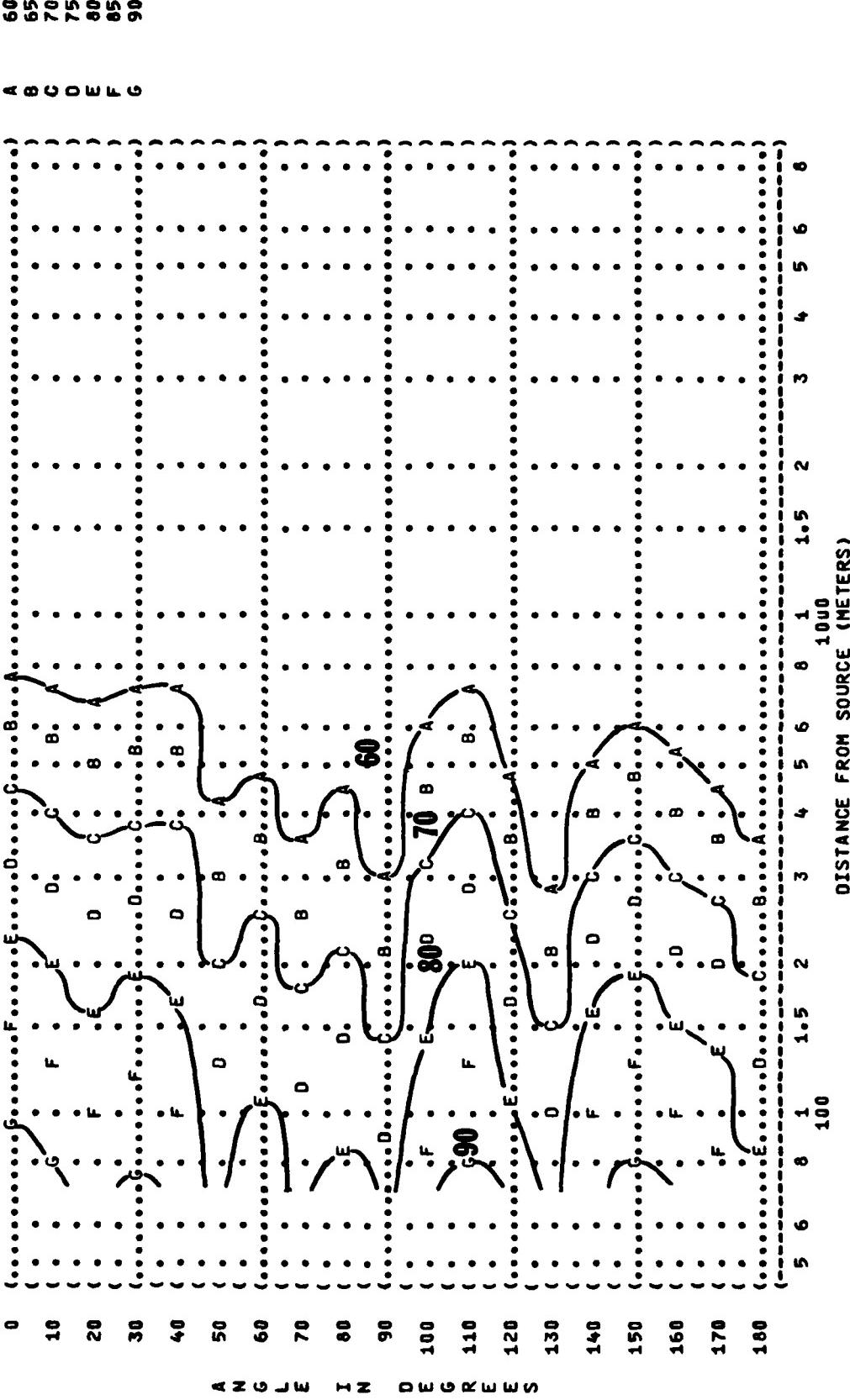


FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
7 EQUAL LEVEL CONTOURS (PNLT)

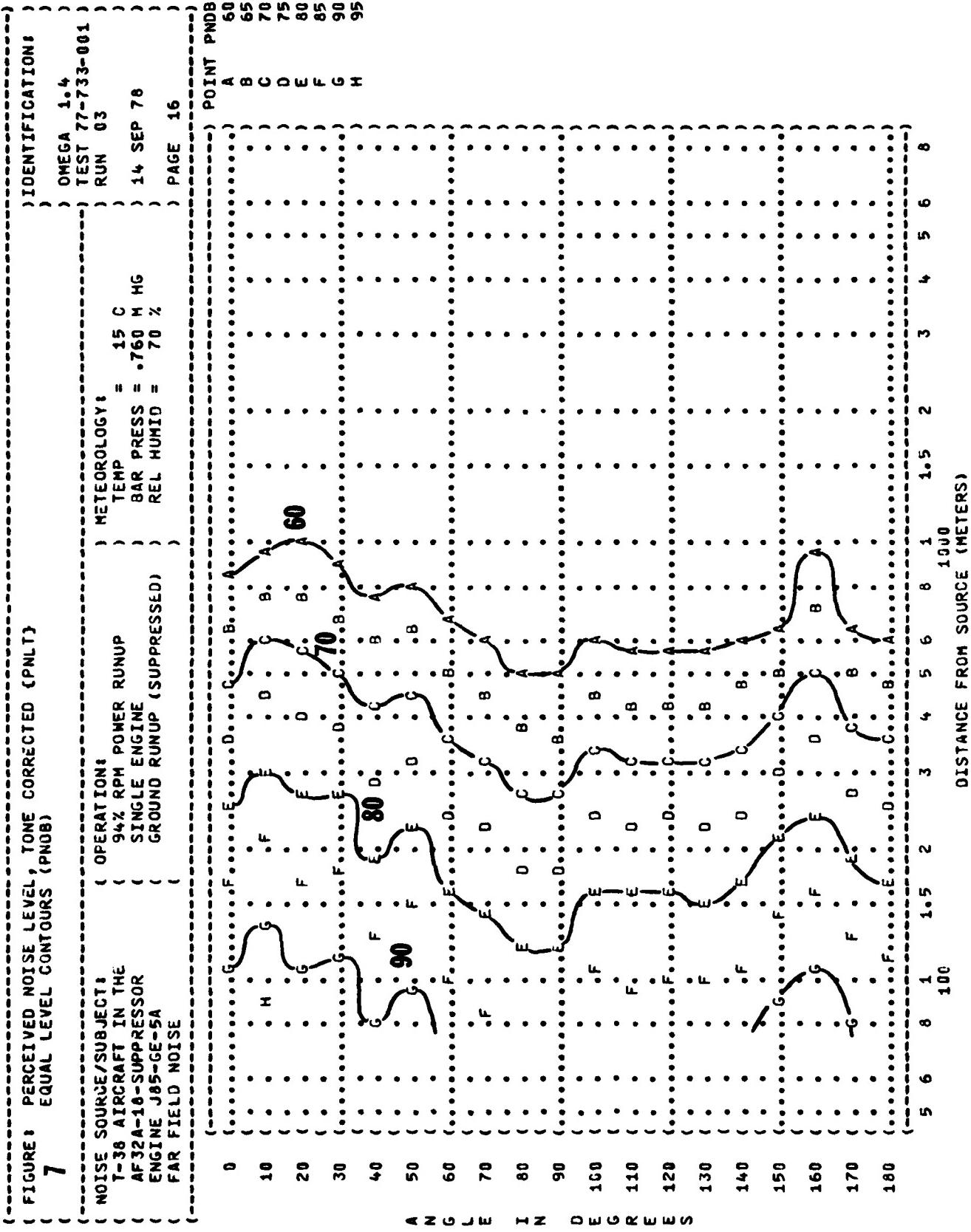


FIGURE 1 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT) - EQUAL LEVEL CONTOURS (PNDB)

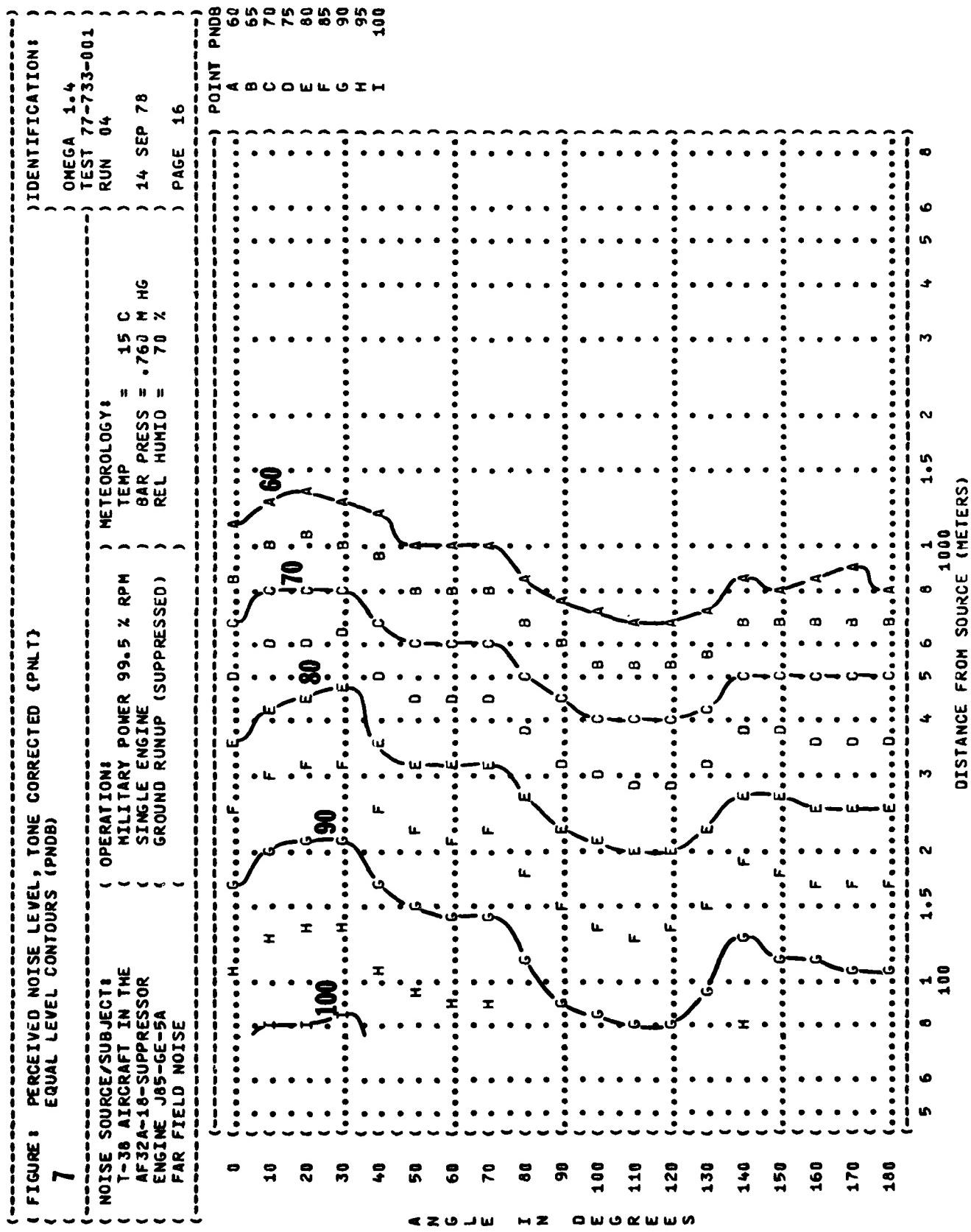
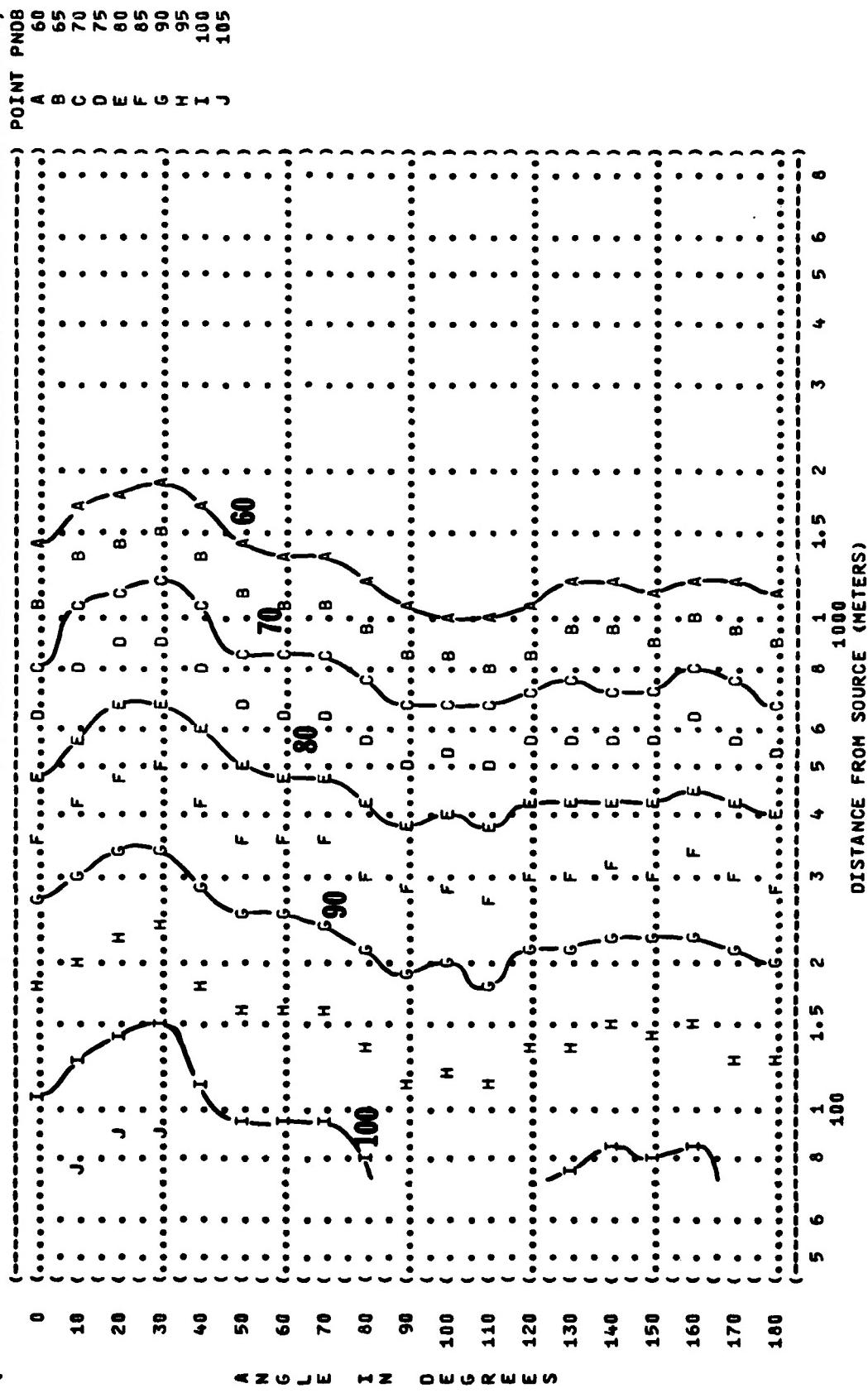
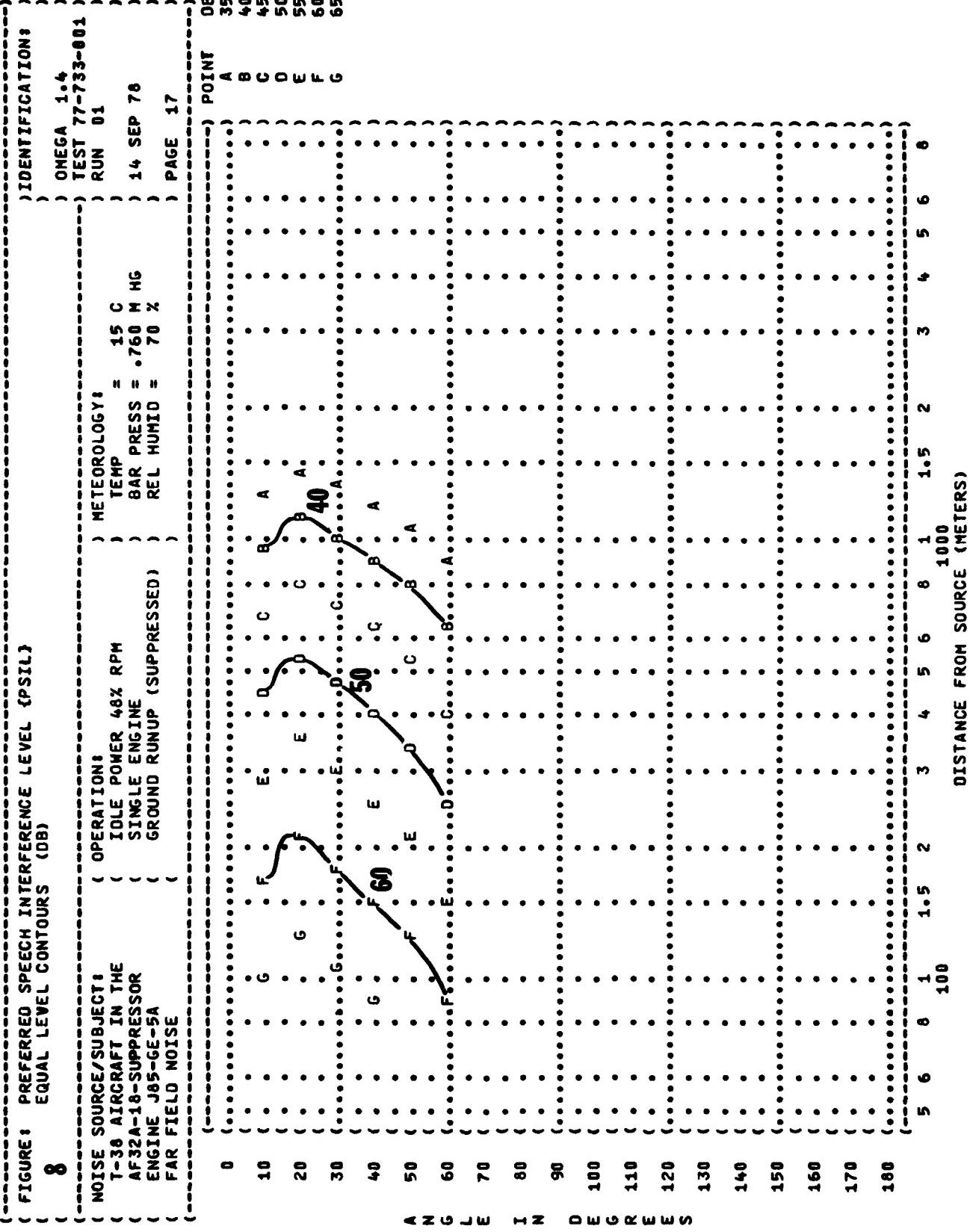


FIGURE 1 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT) EQUAL LEVEL CONTOURS (PNDB)

FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
 EQUAL LEVEL CONTOURS (PNDB) 7
 NOISE SOURCE/SUBJECT: T-38 AIRCRAFT IN THE AF32A-16-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE
 OPERATION: MAX POWER AFTERBURNER SINGLE ENGINE GROUND RUNUP (SUPPRESSED)
 METEOROLOGY: TEMP = 15 C BAR PRESS = .760 HG REL HUMID = 70 %
 IDENTIFICATION: OMEGA 1.4 TEST 77-733-001
) RUN 05)
) 14 SEP 78)
) PAGE 16)



(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL))
8
 EQUAL LEVEL CONTOURS (DB)



(FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 8 EQUAL LEVEL CONTOURS (DB)

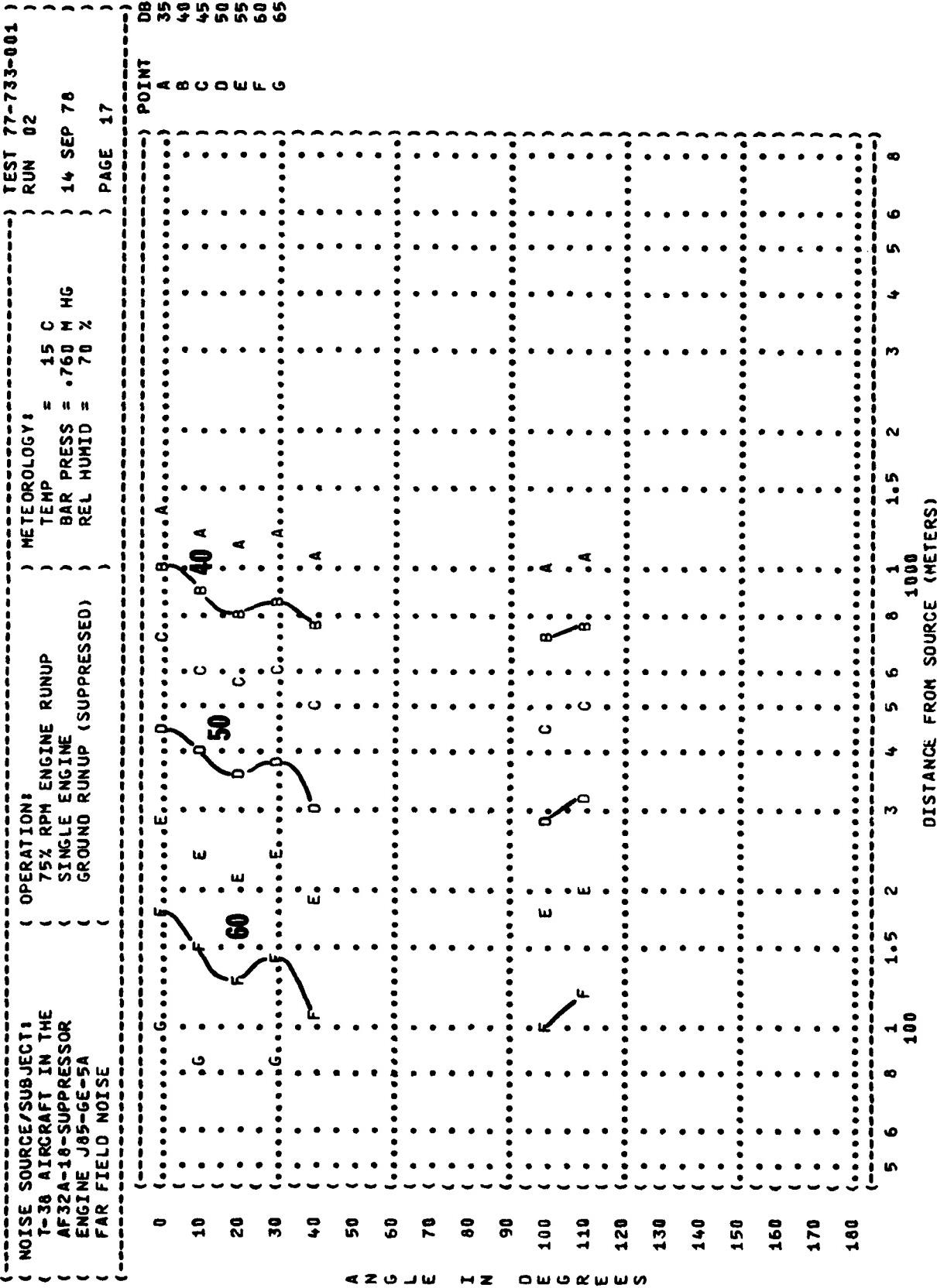


FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)

8

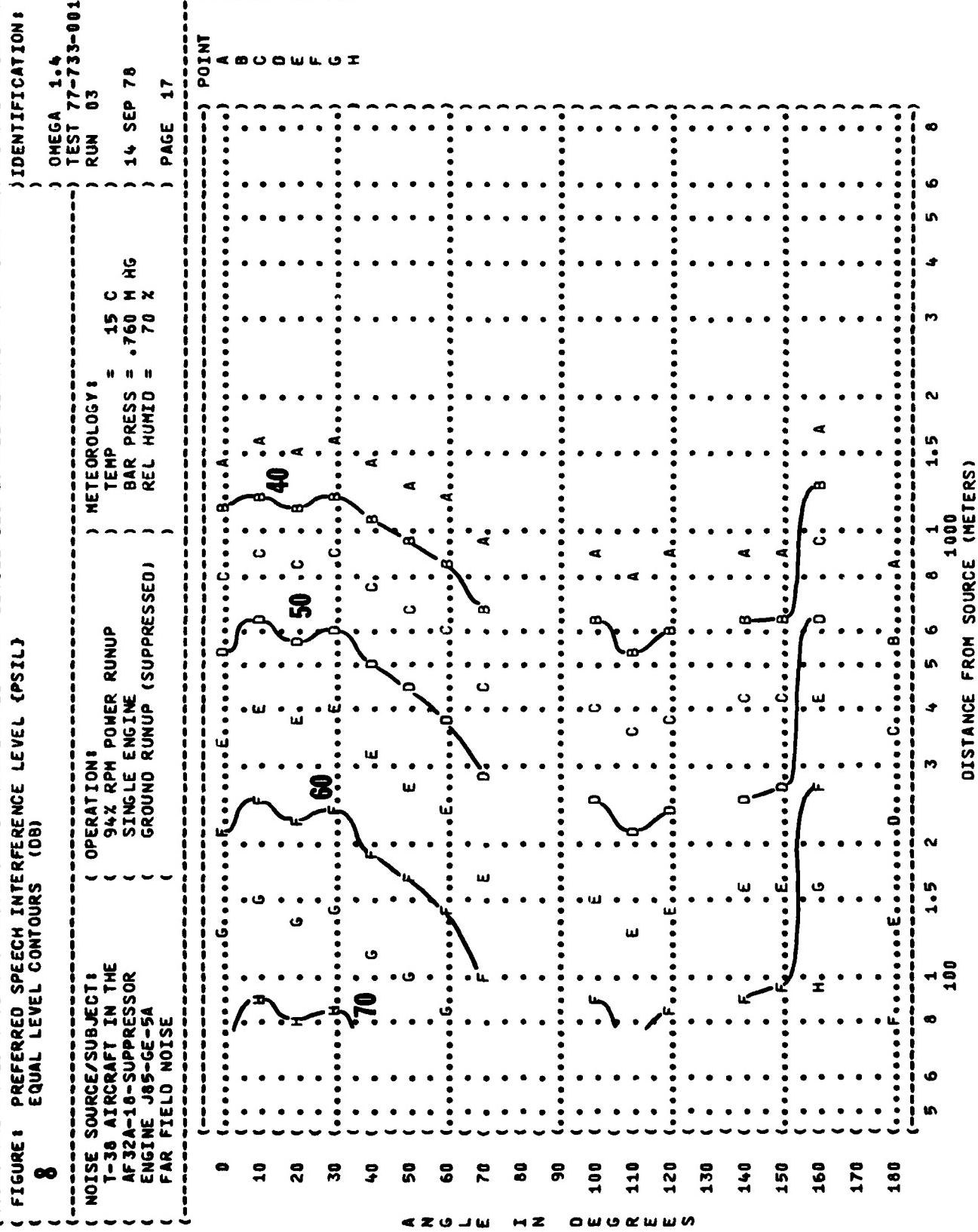


FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
8 EQUAL LEVEL CONTOURS (DB)

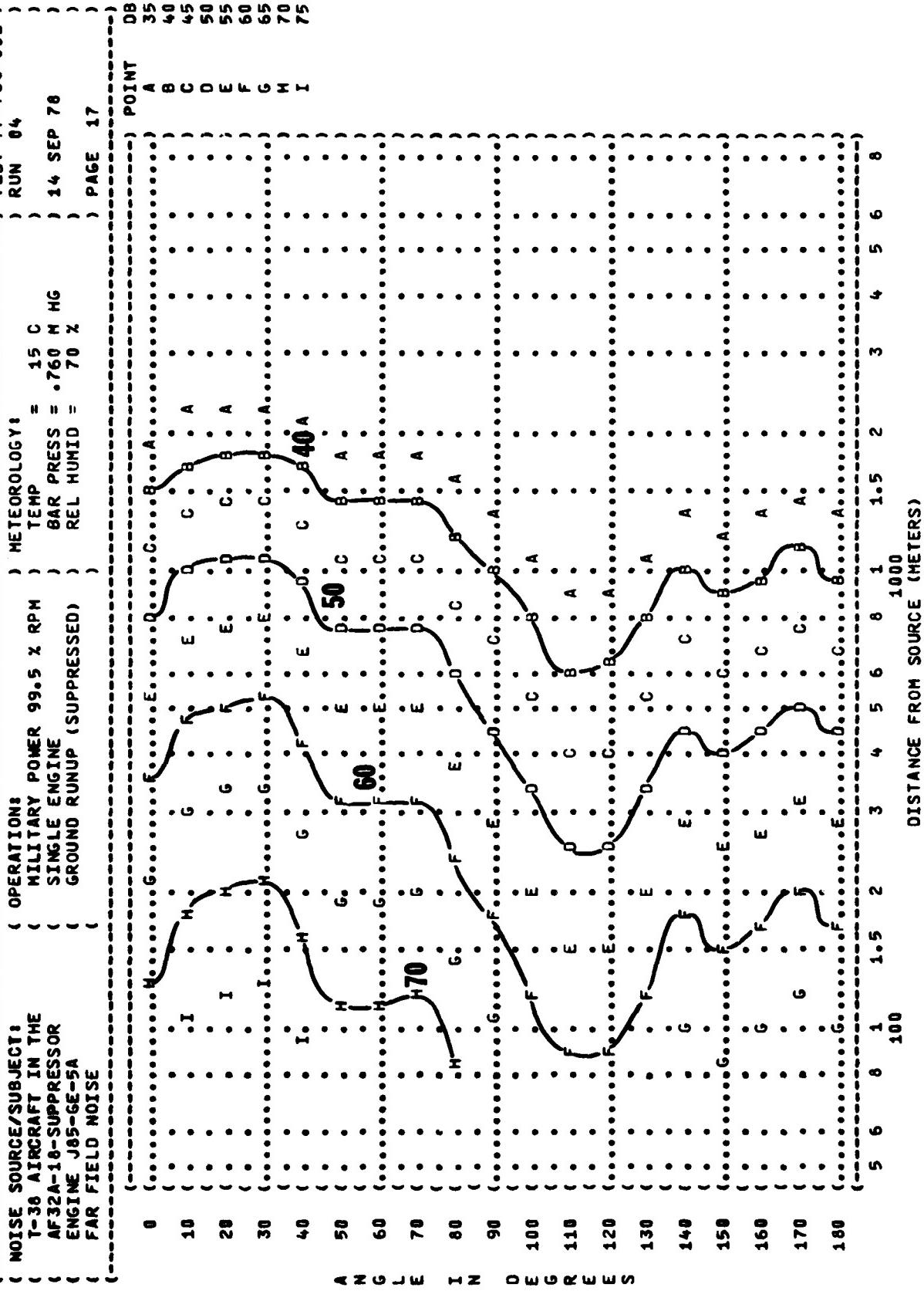
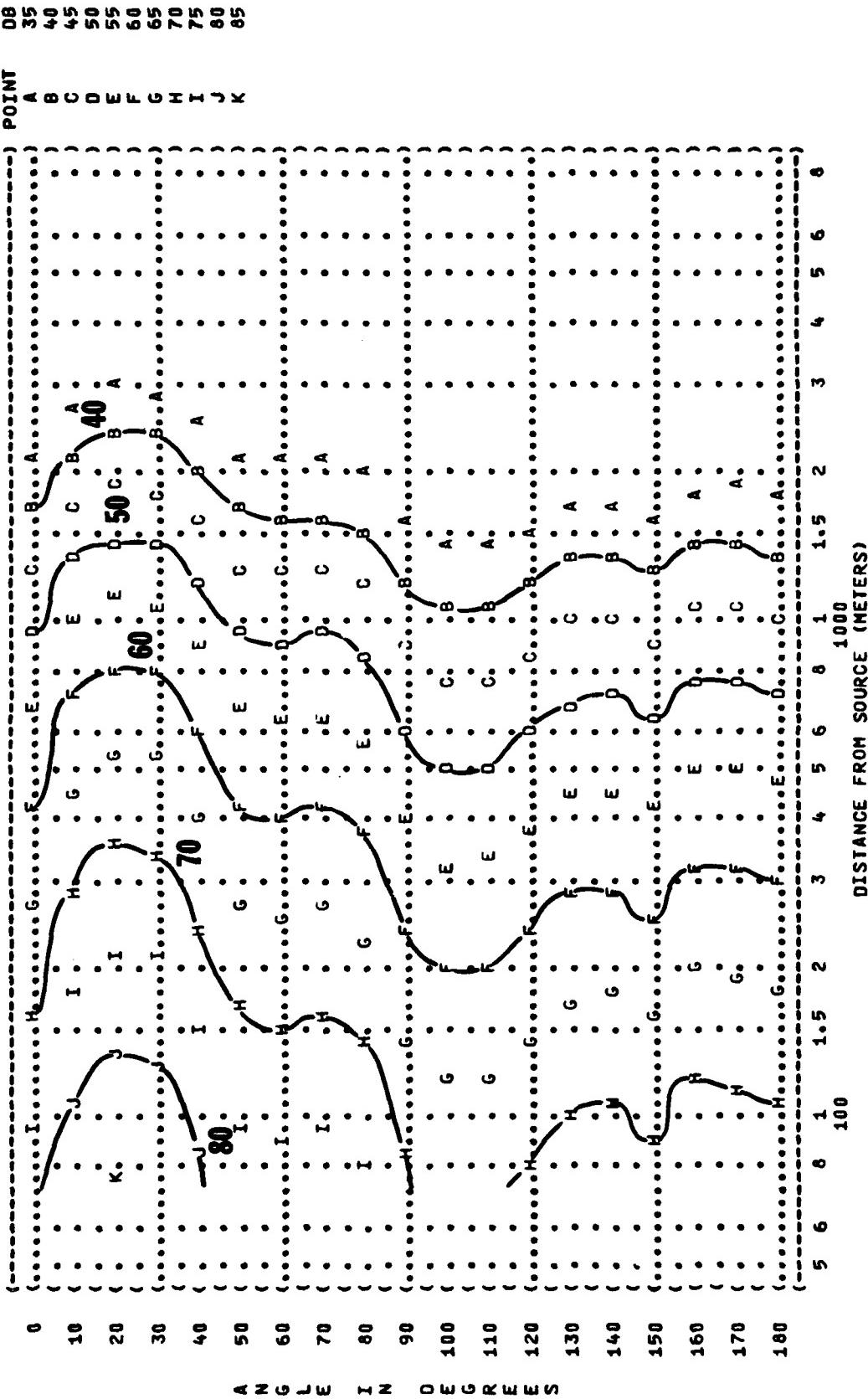


FIGURE 8 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-16-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %
TEST 77-733-001
RUN 05
PAGE 17



{ FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFRR 161-35, JULY 73)) IDENTIFICATION:)

{ EQUAL TIME CONTOURS (MINUTES))

{ 9 }

{ NOISE SOURCE/SUBJECT:) OPERATION:) METEOROLOGY:)
{ T-38 AIRCRAFT IN THE) IDLE POWER 48% RPM) TEMP = 15 C)
{ AF32A-18-SUPPRESSOR) SINGLE ENGINE) BAR PRESS = .760 M HG)
{ ENGINE J85-GE-5A) GROUND RUNUP (SUPPRESSED)) REL HUMID = 70 %) 14 SEP 78
{ FAR FIELD NOISE)
{)
{ 0 <)
{ 10 <)
{ 20 <)
{ 30 <)
{ 40 <)

{ PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY)
{ AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS)
{ FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT))
{ L)
{ E)
{ UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:)
{ I)
{ NO PROTECTION)
{ N)
{ MINIMUM QPL EAR MUFFS)
{ D)
{ AMERICAN OPTICAL 1700 EAR MUFFS)
{ E)
{ V-51R EAR PLUGS)
{ R)
{ E)
{ COMFIT TRIPLE FLANGE EAR PLUGS)
{ S)
{ H-133 GROUND COMMUNICATION UNIT)
{ 130 <)
{ 140 <)
{ 150 <)
{ 160 <)
{ 170 <)
{ 180 <)

{ DISTANCE FROM SOURCE (METERS)

{ 5 6 8 10 1.5 2 3 4 5 6 8 1 1.5 2 3 4 5 6 8 1 1000 }

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 9 EQUAL TIME CONTOURS (MINUTES)

NOISE SOURCE/SUBJECT:	OPERATION!
T-38 AIRCRAFT IN THE	75% RPM ENGINE RUNUP
AF32A-1B-SUPPRESSOR	SINGLE ENGINE
ENGINE J85-GE-5A	GROUND RUNUP (SUPPRESSED)
FAR FIELD NOISE	

OMEGA 1•6
 TEST 77-733-001
 RUN 02
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 PAGE 7

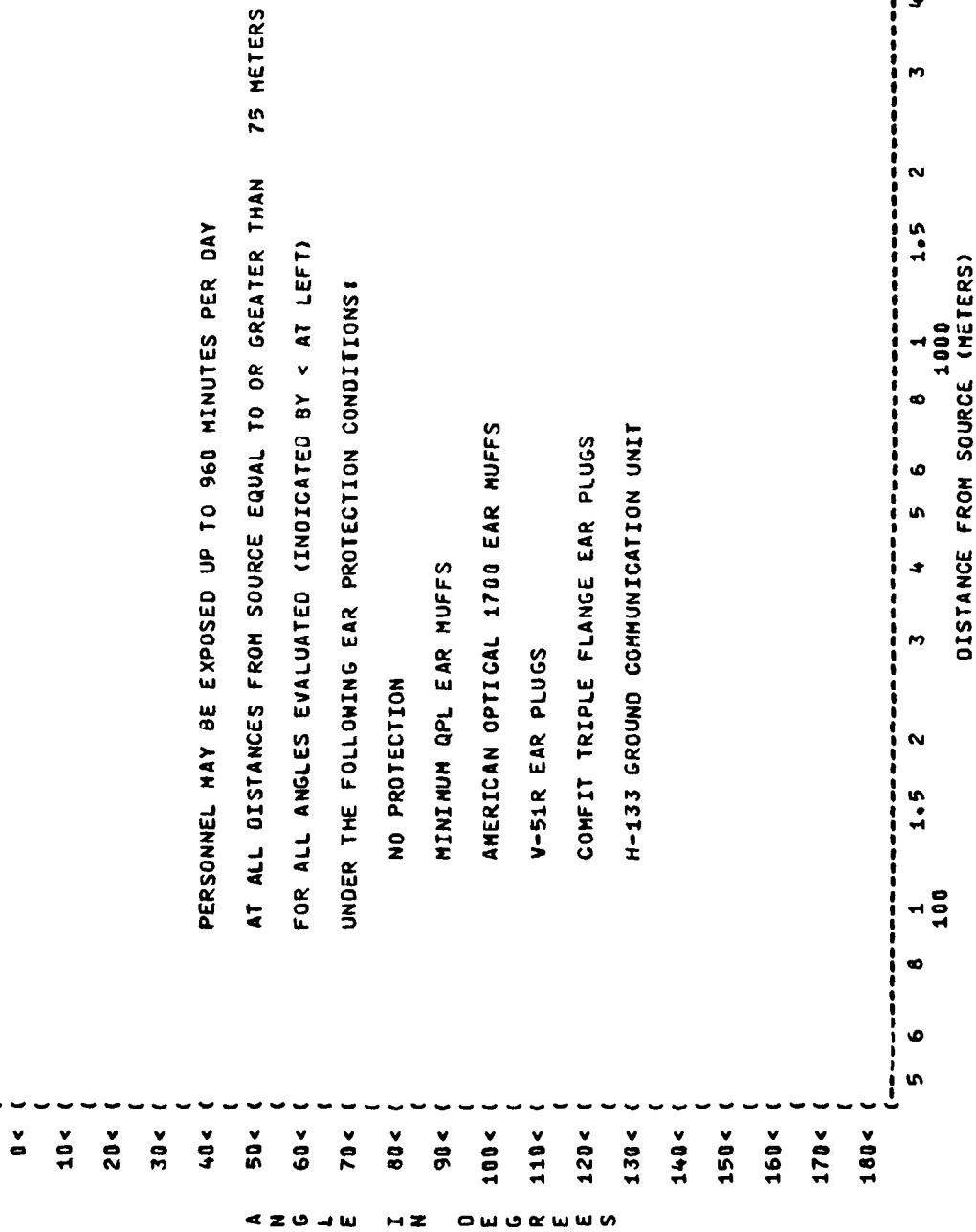


FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
9
 EQUAL TIME CONTOURS (MINUTES)

NOISE SOURCE/SUBJECT		OPERATION:		METEOROLOGY:		IDENTIFICATION!	
T-38 AIRCRAFT IN THE AF32A-16-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE	(SINGLE ENGINE GROUND RUNUP (SUPPRESSED))	(96% RPM POWER RUNUP)	(TEMP BAR PRESS REL HUMID)	= .760 M HG 70 %	(15 C 14 SEP 78)	(TEST 77-733-001 RUN 03)	(OMEGA 1. ⁴)

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
 AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
 FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)
 UNDER THE FOLLOWING FAR PROTECTION CONDITIONS:
 A N G L E S

I	80 < (NO PROTECTION
N	90 < (MINIMUM QPL EAR MUFFS
D	100 < (AMERICAN OPTICAL 1700 EAR MUFFS
G	110 < (V-51R EAR PLUGS
R	120 < (COMFIT TRIPLE FLANGE EAR PLUGS
E	130 < (H-133 GROUND COMMUNICATION UNIT

Distance from Source (Meters)	Concentration
0	100
1.0	1000
1.5	1000
2.0	800
3.0	400
4.0	200
5.0	150
6.0	100
8.0	50
10.0	20

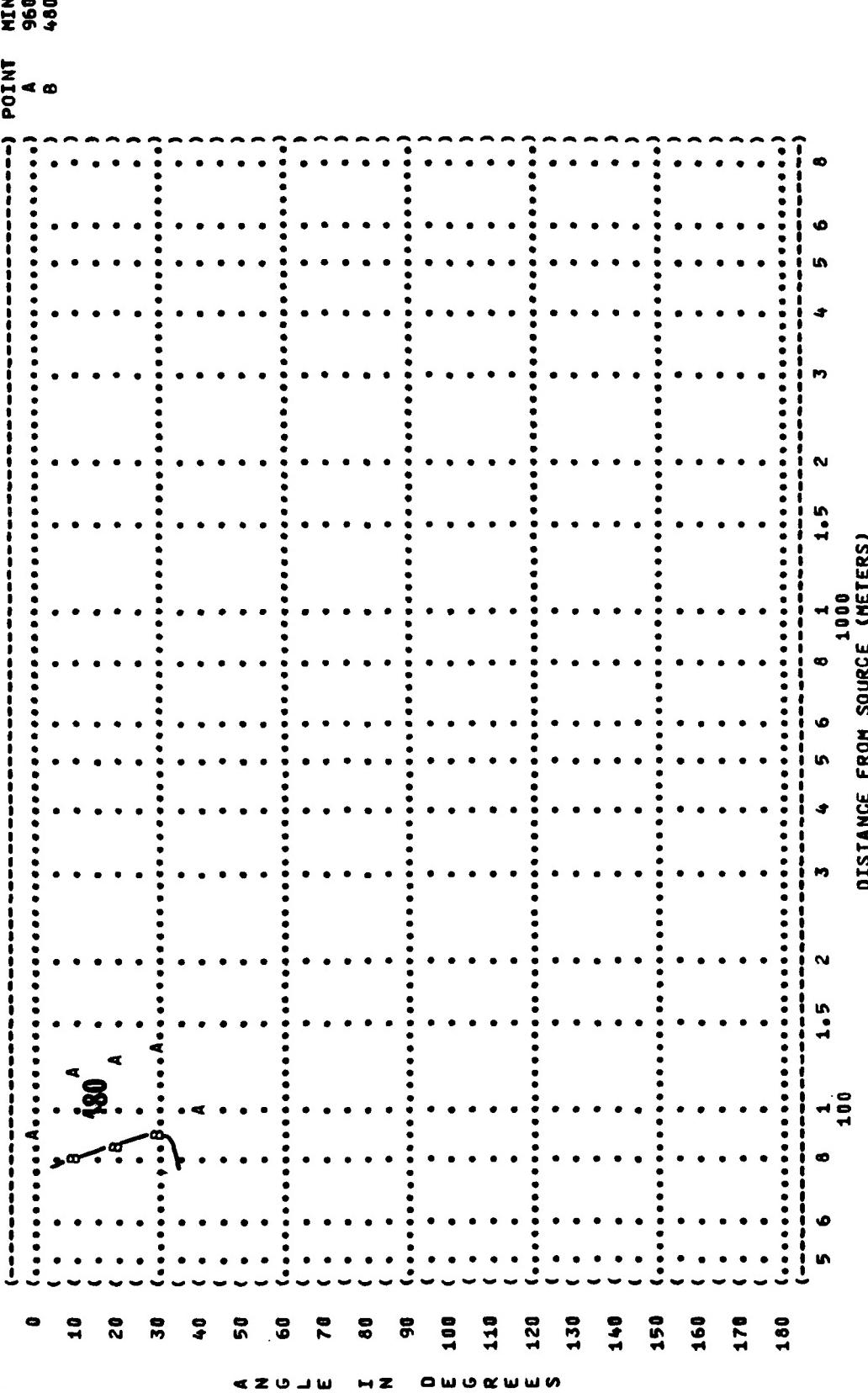
FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 EQUAL TIME CONTOURS (MINUTES)
9
 NO PROTECTION

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MILITARY POWER 99.5 X RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 Hg
 REL HUMID = 70 %

TEST 77-733-001
 RUN 04₄
 PAGE 7



(-- FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 EQUAL TIME CONTOURS (MINUTES)

9

NOISE SOURCE/SUBJECT:	OPERATION:	MILITARY POWER 99.5 % RPM	TEMP = 15 C	OMEGA 1•4
T-38 AIRCRAFT IN THE AF32A-18-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE	SINGLE ENGINE GROUND RUNUP (SUPPRESSED)	BAR PRESS = .760 MM HG	REL HUMID = 70 %	TEST 77-733-001 RUN 04 PAGE 6

0<

10<

20<

30<

40<

50<

60<

70<

80<

90<

100<

110<

120<

130<

140<

150<

160<

170<

180<

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY

AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

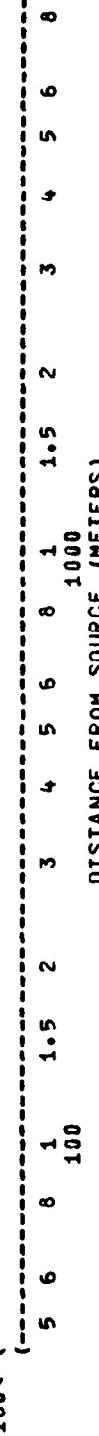
MINIMUM UPL EAR MUFFS

AMERICAN OPTICAL 1700 EAR MUFFS

V-51R EAR PLUGS

COMFIT TRIPLE FLANGE EAR PLUGS

H-133 GROUND COMMUNICATION UNIT



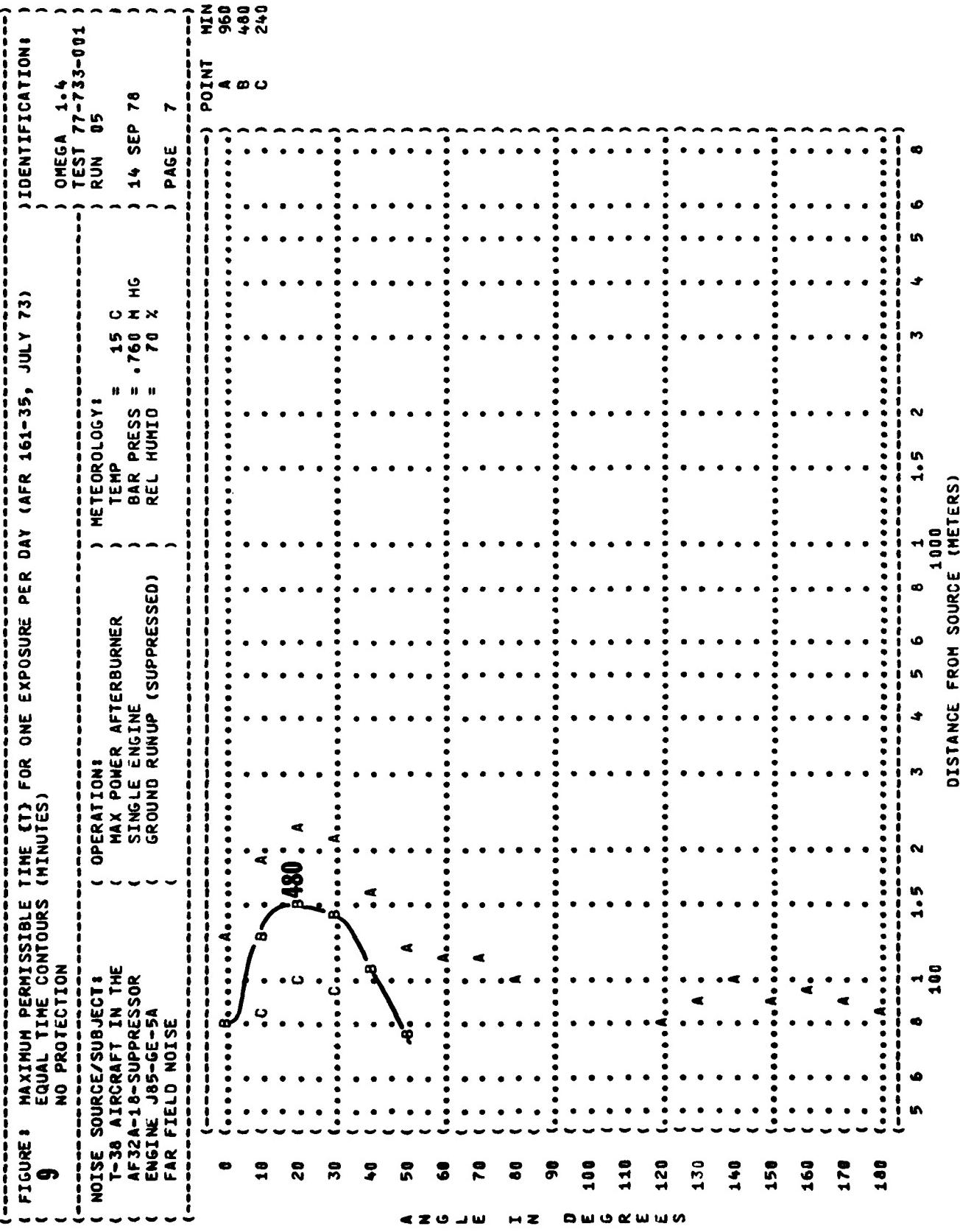


FIGURE 1 MAXIMUM PERMISSIBLE TIME (T) FOR EQUAL TIME CONTOURS (MINUTES)

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) IDENTIFICATION:
 EQUAL TIME CONTOURS (MINUTES))
 9)
 NOISE SOURCE/SUBJECT:) OPERATION) METEOROLOGY:
 T-38 AIRCRAFT IN THE) MAX POWER AFTERBURNER) TEMP = 15 C
 AF32A-18-SUPPRESSOR) SINGLE ENGINE) BAR PRESS = .760 MM HG
 ENGINE J85-GE-5A) GROUND RUNUP (SUPPRESSED)) REL HUMID = 70 %
 FAR FIELD NOISE)
) TEST 77-733-001
) RUN 05
) PAGE 8

0 < 10 < 20 < 30 < 40 < 50 < 60 < 70 < 80 < 90 < 100 < 110 < 120 < 130 < 140 < 150 < 160 < 170 < 180 < 190 < 200 < 210 < 220 < 230 < 240 < 250 < 260 < 270 < 280 < 290 < 300 < 310 < 320 < 330 < 340 < 350 < 360 < 370 < 380 < 390 < 400 < 410 < 420 < 430 < 440 < 450 < 460 < 470 < 480 < 490 < 500 < 510 < 520 < 530 < 540 < 550 < 560 < 570 < 580 < 590 < 600 < 610 < 620 < 630 < 640 < 650 < 660 < 670 < 680 < 690 < 700 < 710 < 720 < 730 < 740 < 750 < 760 < 770 < 780 < 790 < 800 < 810 < 820 < 830 < 840 < 850 < 860 < 870 < 880 < 890 < 900 < 910 < 920 < 930 < 940 < 950 < 960 < 970 < 980 < 990 < 1000 <

AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

V-E19 E19 DI 11CE

COMET II TABLE FINANCE EAGE P1HGS

H-133 GROUND COMMUNICATION UNIT

1000 <----- 100 ----- 10000

FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (dB)
10
 31.5 Hz OCTAVE BAND
 NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-1B-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATIONS:
 IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 MM HG
 REL HUMID = 70 %
 PAGE 10

IDENTIFICATION:
 OMEGA 14
 TEST 77-733-001
 RUN 01

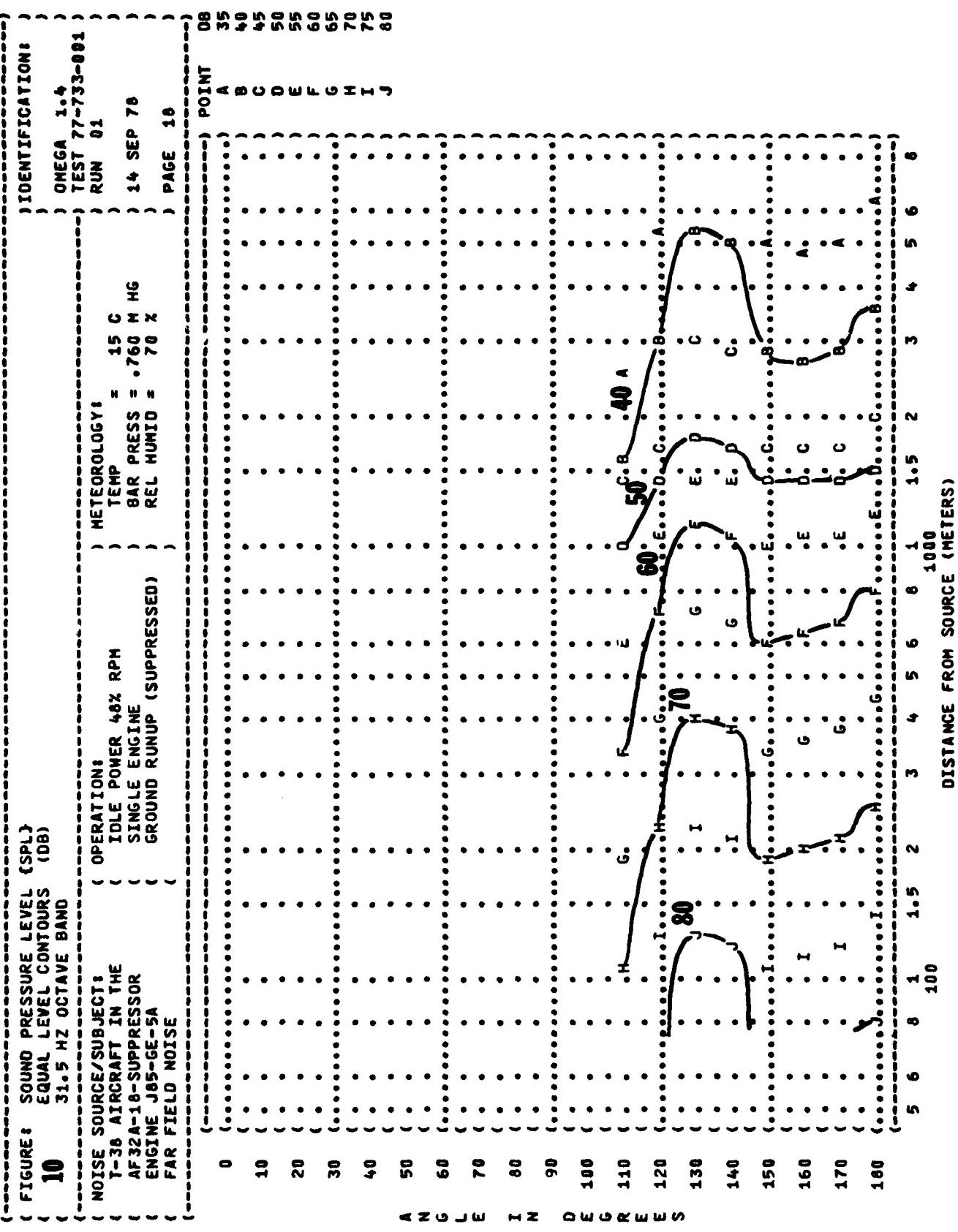


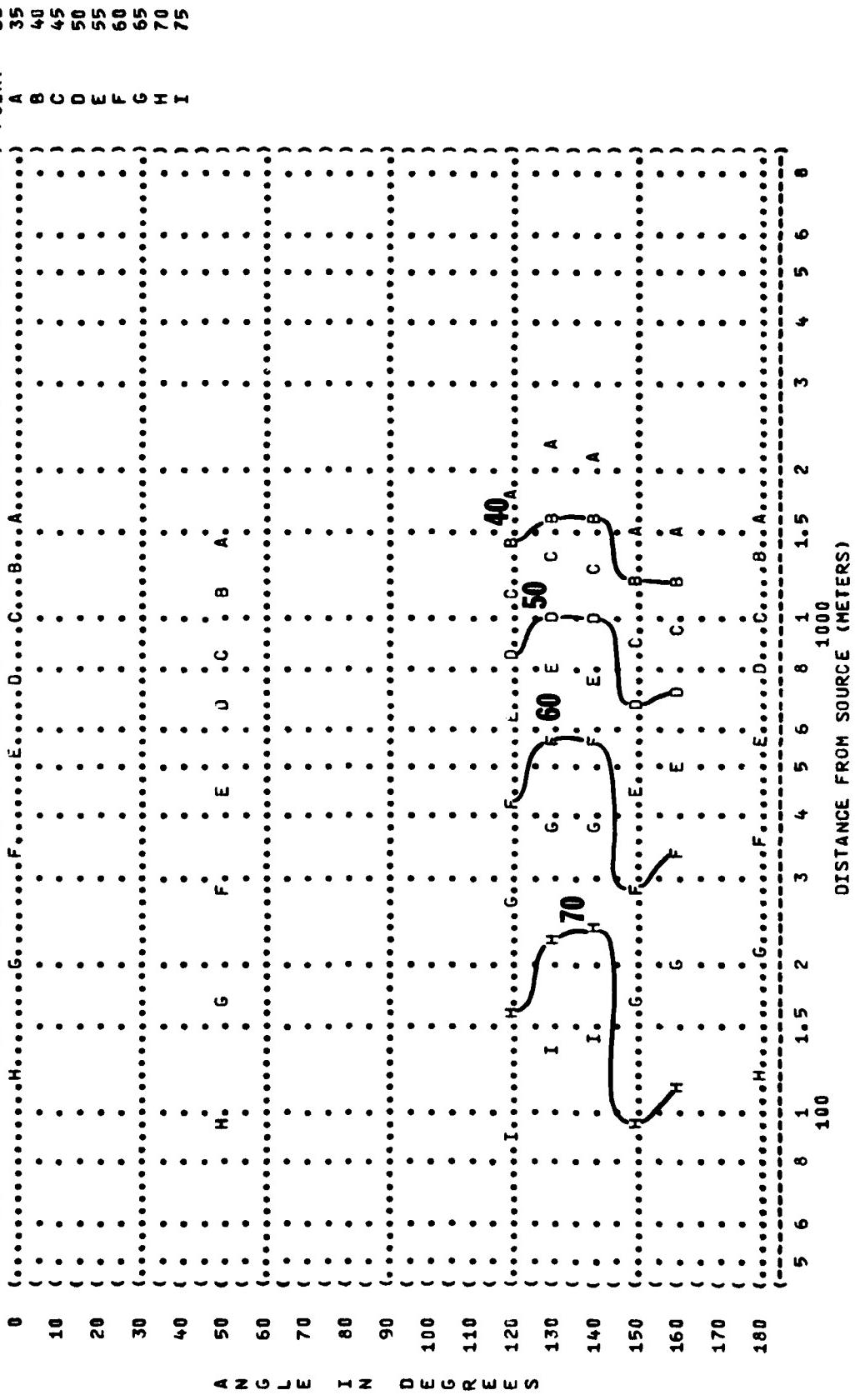
FIGURE: SOUND PRESSURE LEVEL (SPL)
10
 EQUAL LEVEL CONTOURS (DB)
 63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-733-001
 RUN 01
 14 SEP 78
 PAGE 19



(FIGURE) SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (dB)
 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-16-SUPPRESSOR
 ENGINE JAS-GE-5A
 FAR FIELD NOISE

OPERATIONS:
 IDLE POWER 40% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 N HG
 REL HUMID = 70 %

PAGE 20

TEST 77-733-001
 OMEGA 1.4
 RUN 01
 14 SEP 78

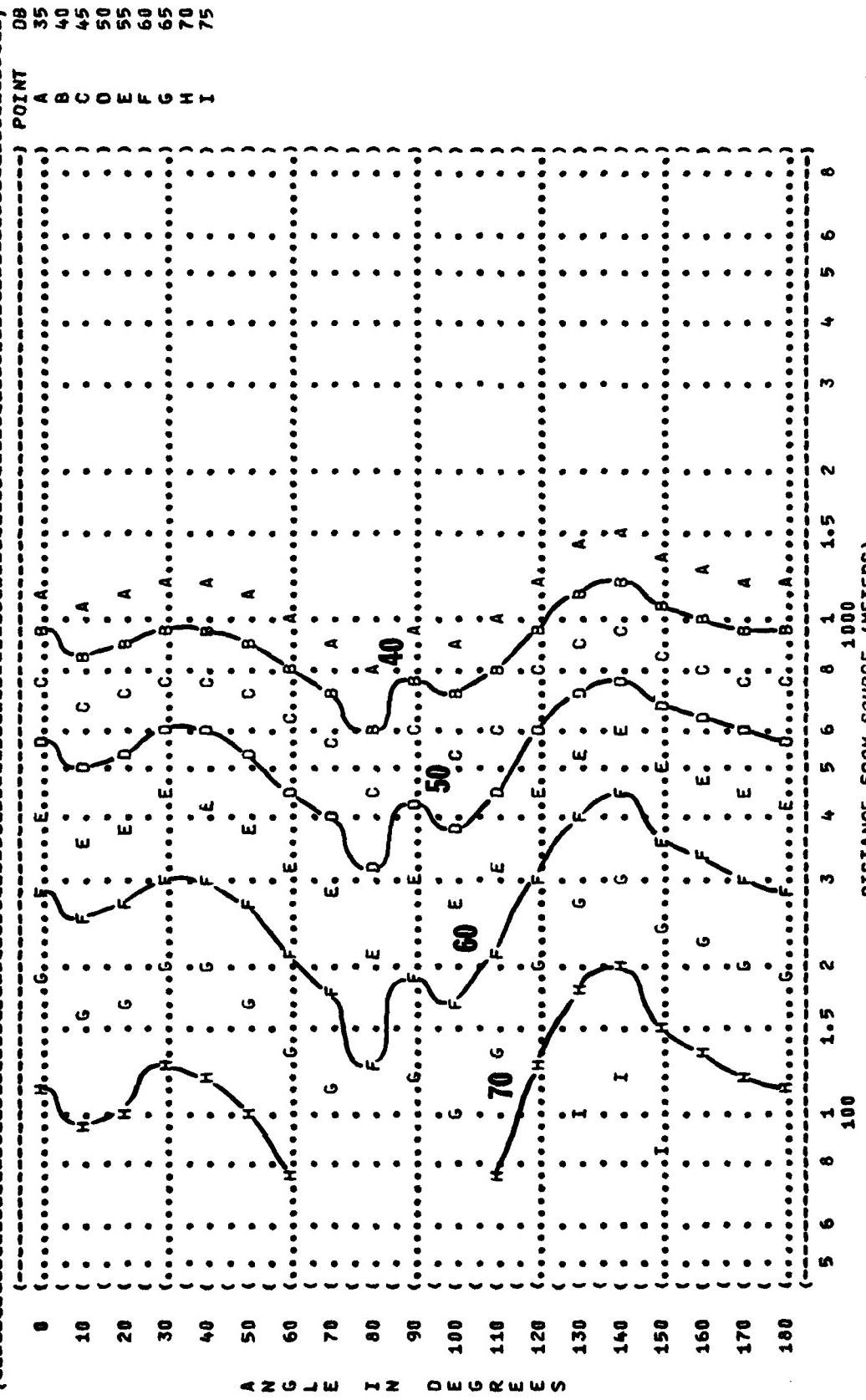


FIGURE: SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF 32A-1A-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-733-001
RUN 01

14 SEP 76

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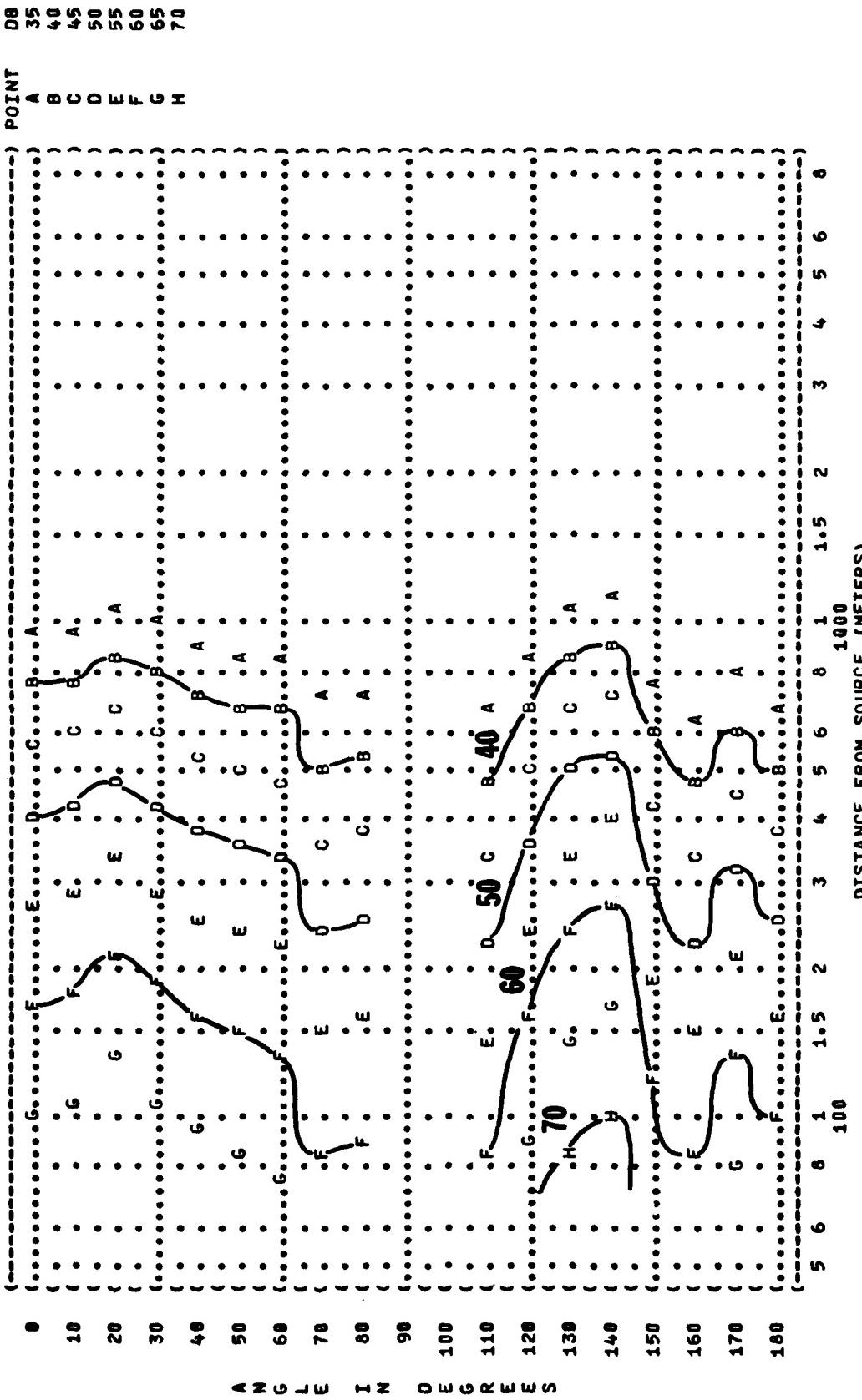


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)

10

500 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT 1
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

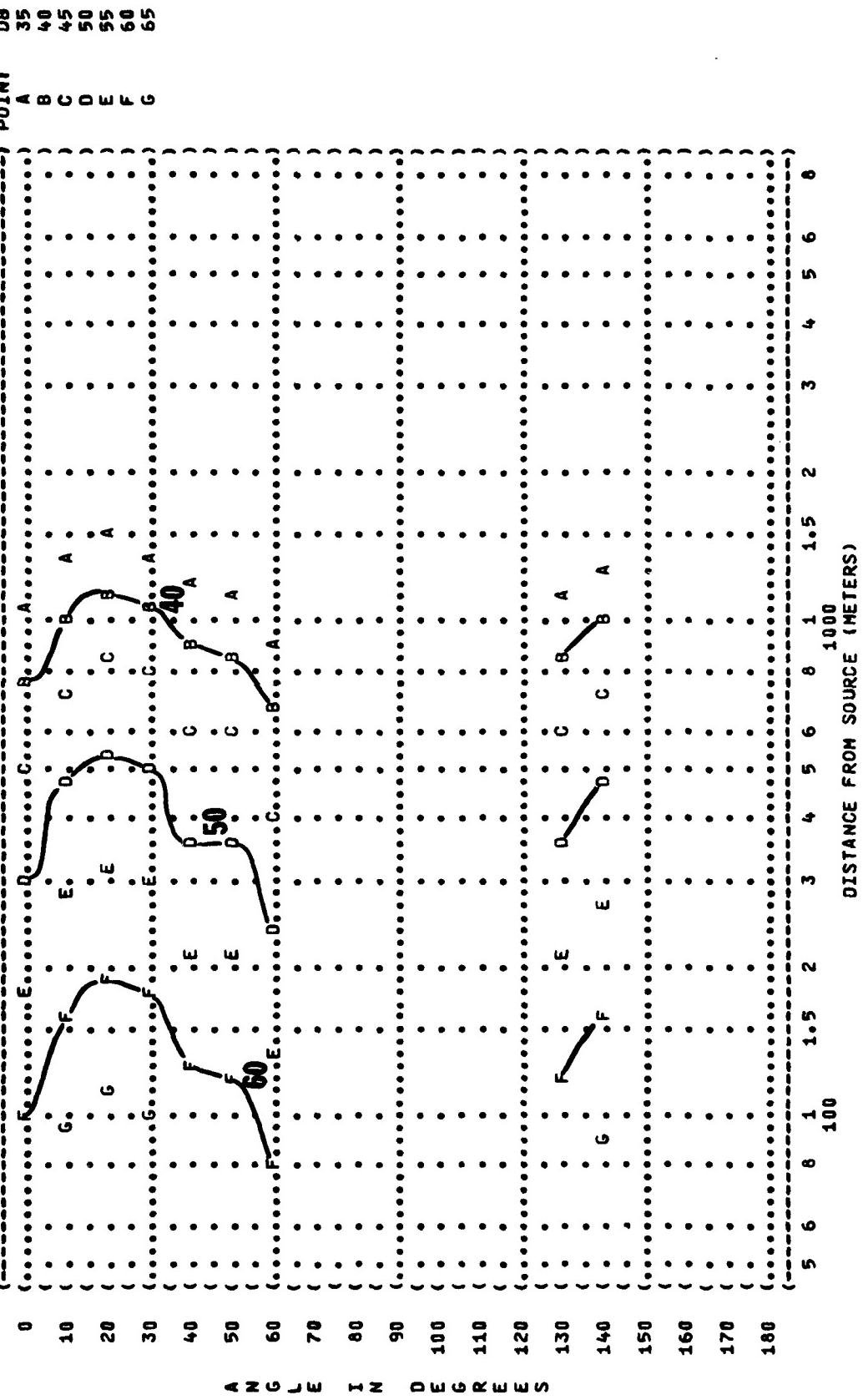
IDENTIFICATION:

OMEGA 1.4
TEST 77-733-001
RUN 01

OPERATIONS:
IDLE POWER 48% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

PAGE 22



DISTANCE FROM SOURCE (METERS)

5 6 8 10 1.5 2 3 4 5 6 8 1000 1.5 2 3 4 5 6 8

FIGURE: SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)
 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 MM HG
 REL HUMID = 70 %
 PAGE 23

IDENTIFICATION:

OMEGA 1.4
 TEST 77-733-001
 RUN 01

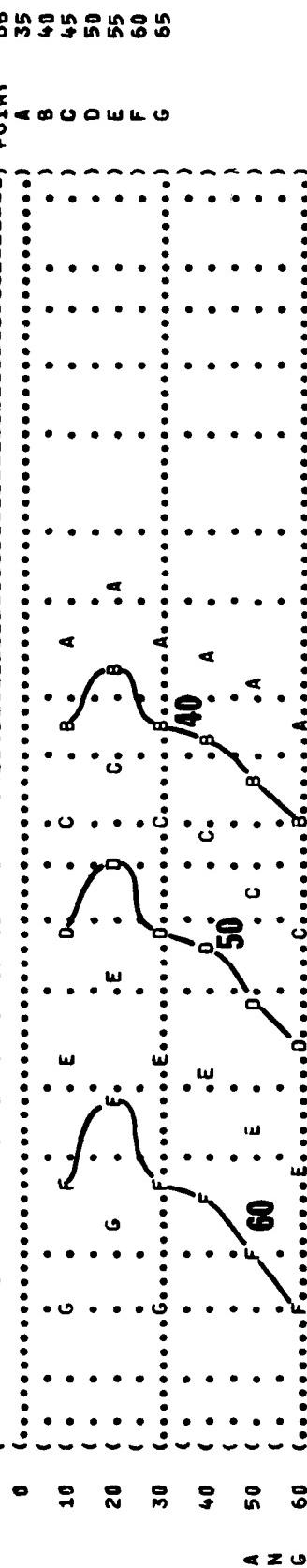


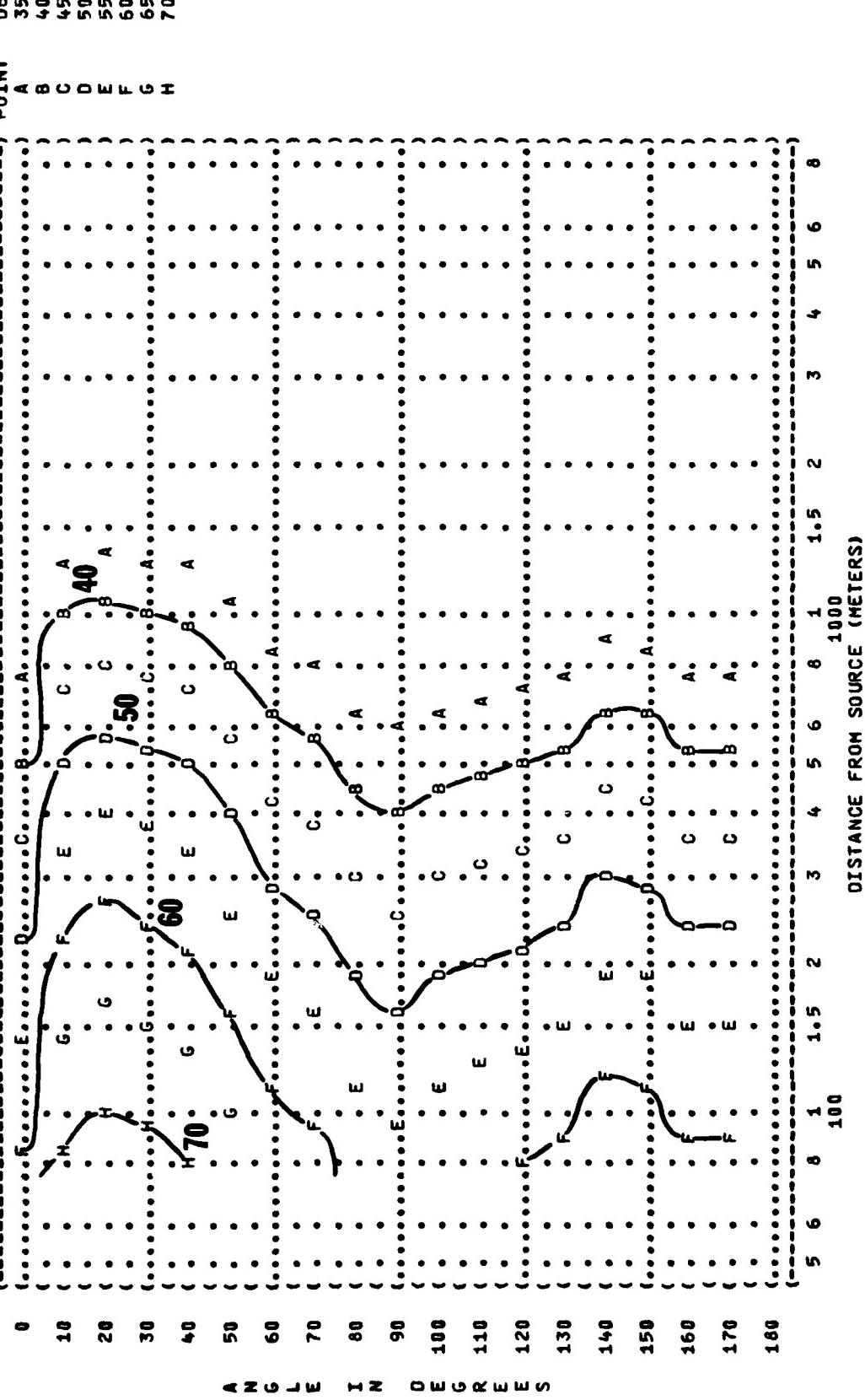
FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)
 2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 H HG
 REL HUMID = 70 %

TEST 77-733-001
 RUN 01
 14 SEP 78
 PAGE 24



DISTANCE FROM SOURCE (METERS)

5 6 8 100 1.5 2 3 4 5 6 8 1 1.5 2 3 4 5 6 8

FIGURE : SOUND PRESSURE LEVEL (SPL)
10
 EQUAL LEVEL CONTOURS (DB)
 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-10-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:

IDLE POWER 48% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

TEST 77-733-001

RUN 01

14 SEP 78

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 MM HG

REL HUMID = 70 %

PAGE 25

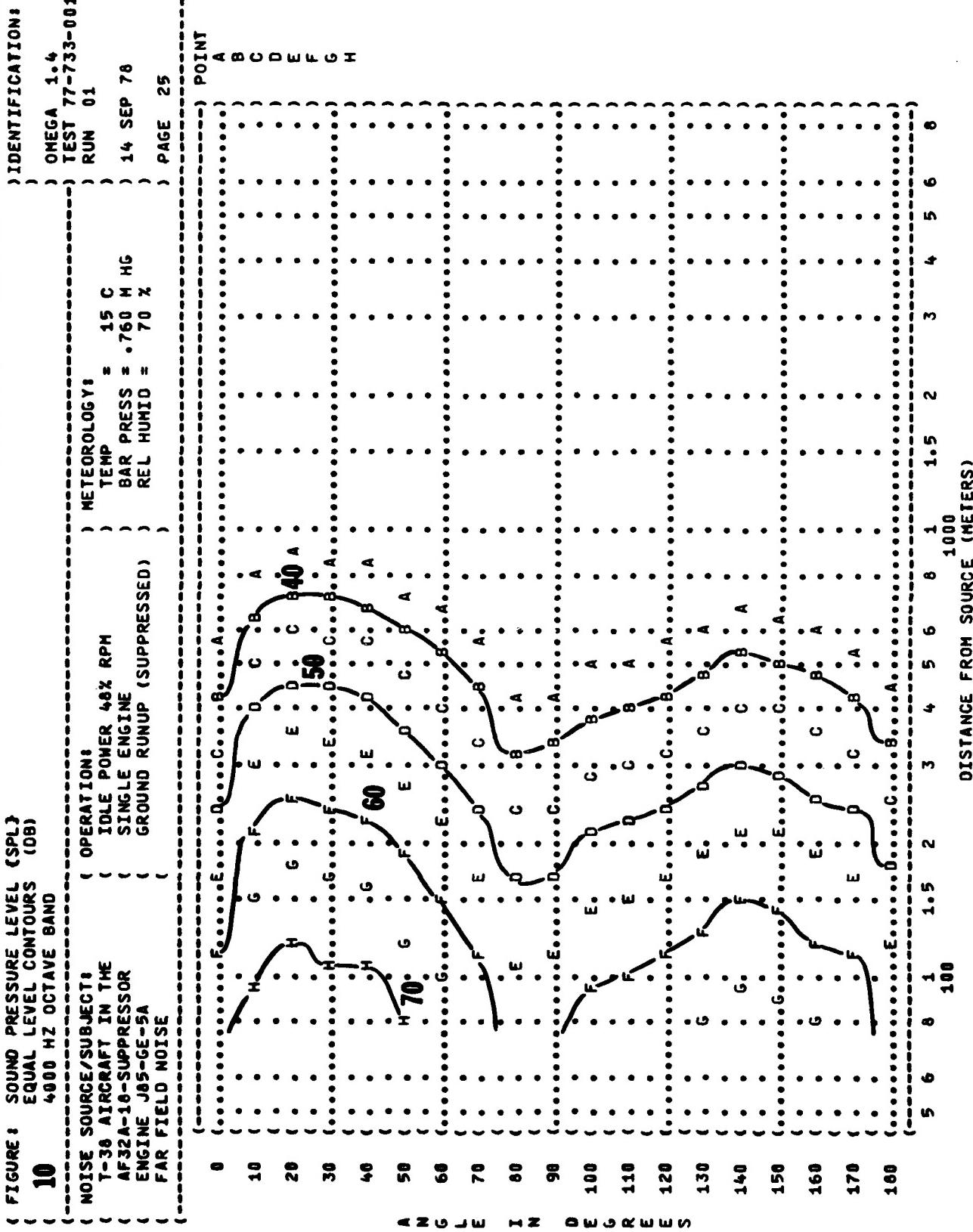


FIGURE 10
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)

10

NOISE SOURCE/SUBJECT: T-38 AIRCRAFT IN THE AF32A-18-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE

OPERATION: IDLE POWER 48% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

TEST 77-733-001
RUN 01

OMEGA 1.4
PAGE 26

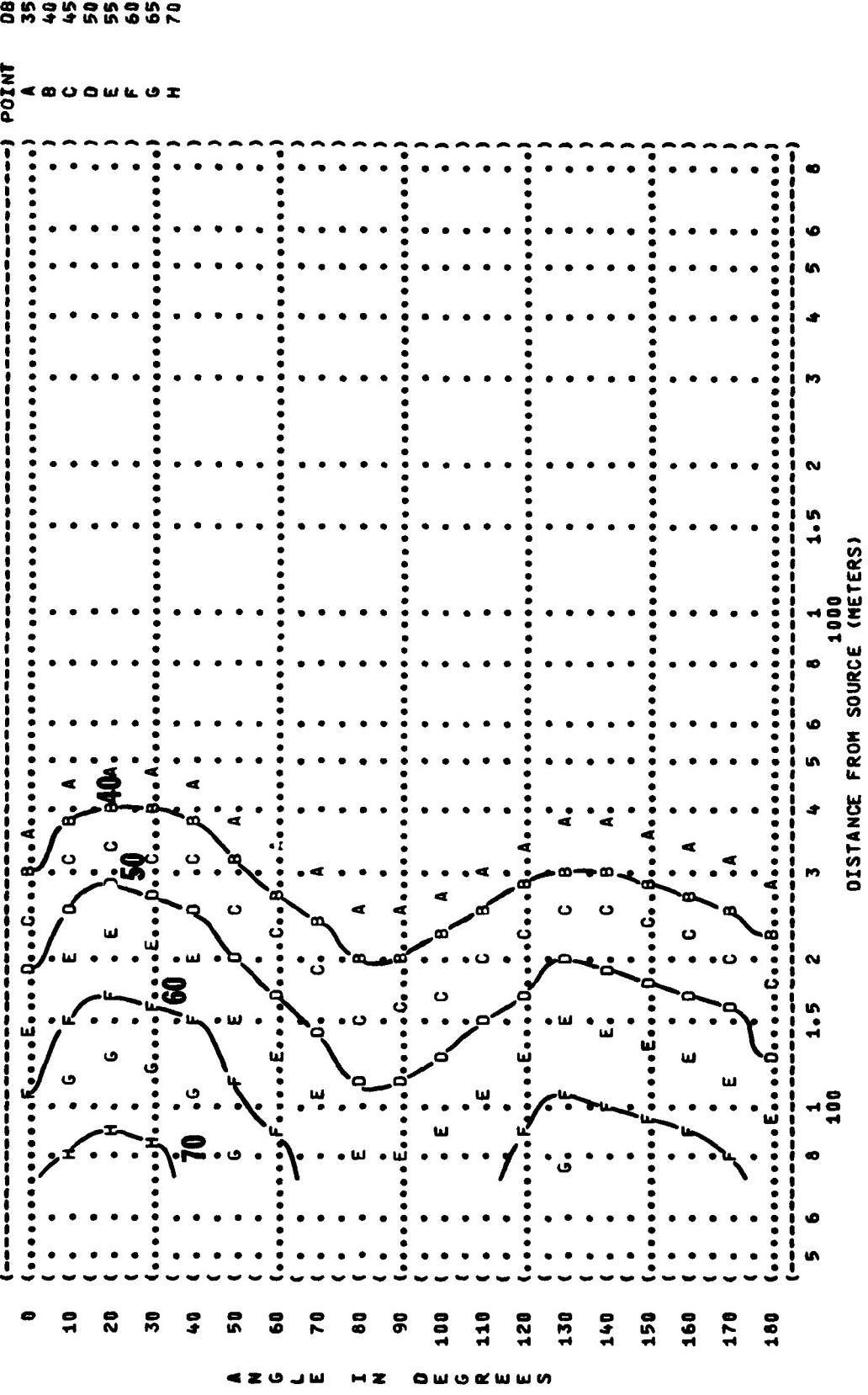
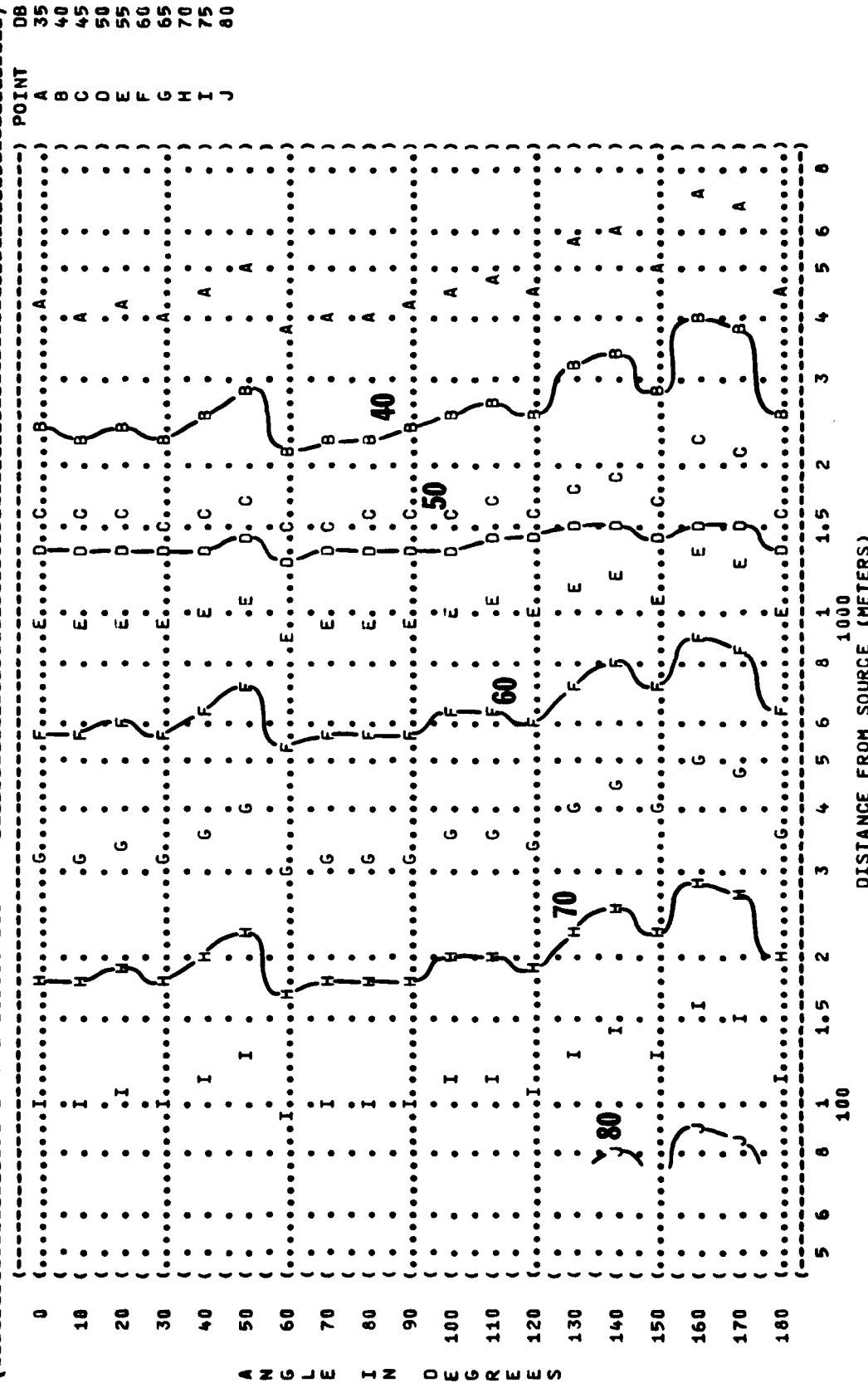


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
10 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF 32A-16-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
(75% RPM ENGINE RUNUP
(SINGLE ENGINE
(GROUND RUNUP (SUPPRESSED)
(



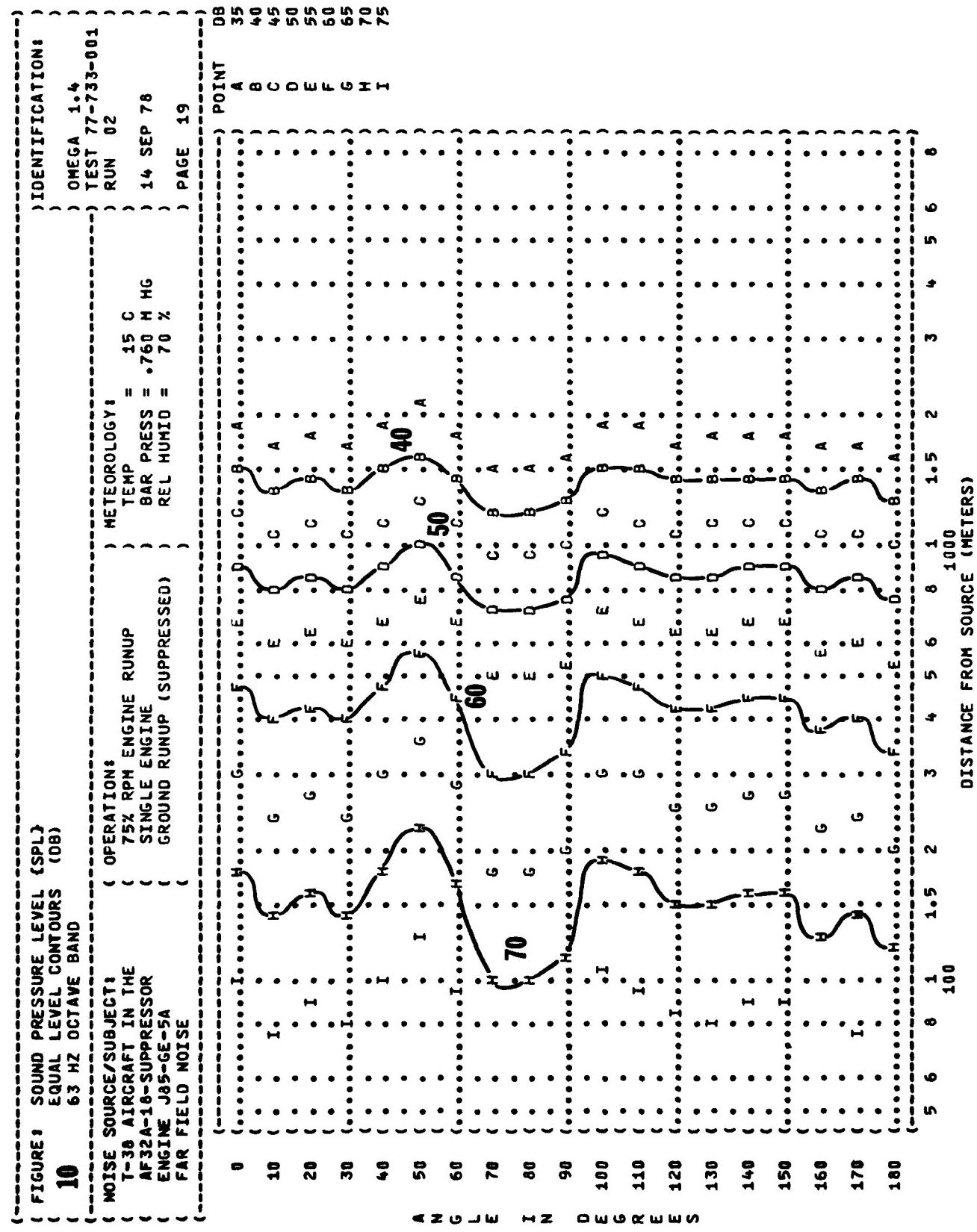


FIGURE : SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS
125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-16-SUPPRESSOR
 ENGINE J85-GE-3A
 FAR FIELD NOISE

OPERATION:
 75% RPM ENGINE RUNUP
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 Hg
 REL HUMID = 70 %

TEST 77-733-001
 RUN 02
 14 SEP 78
 PAGE 20

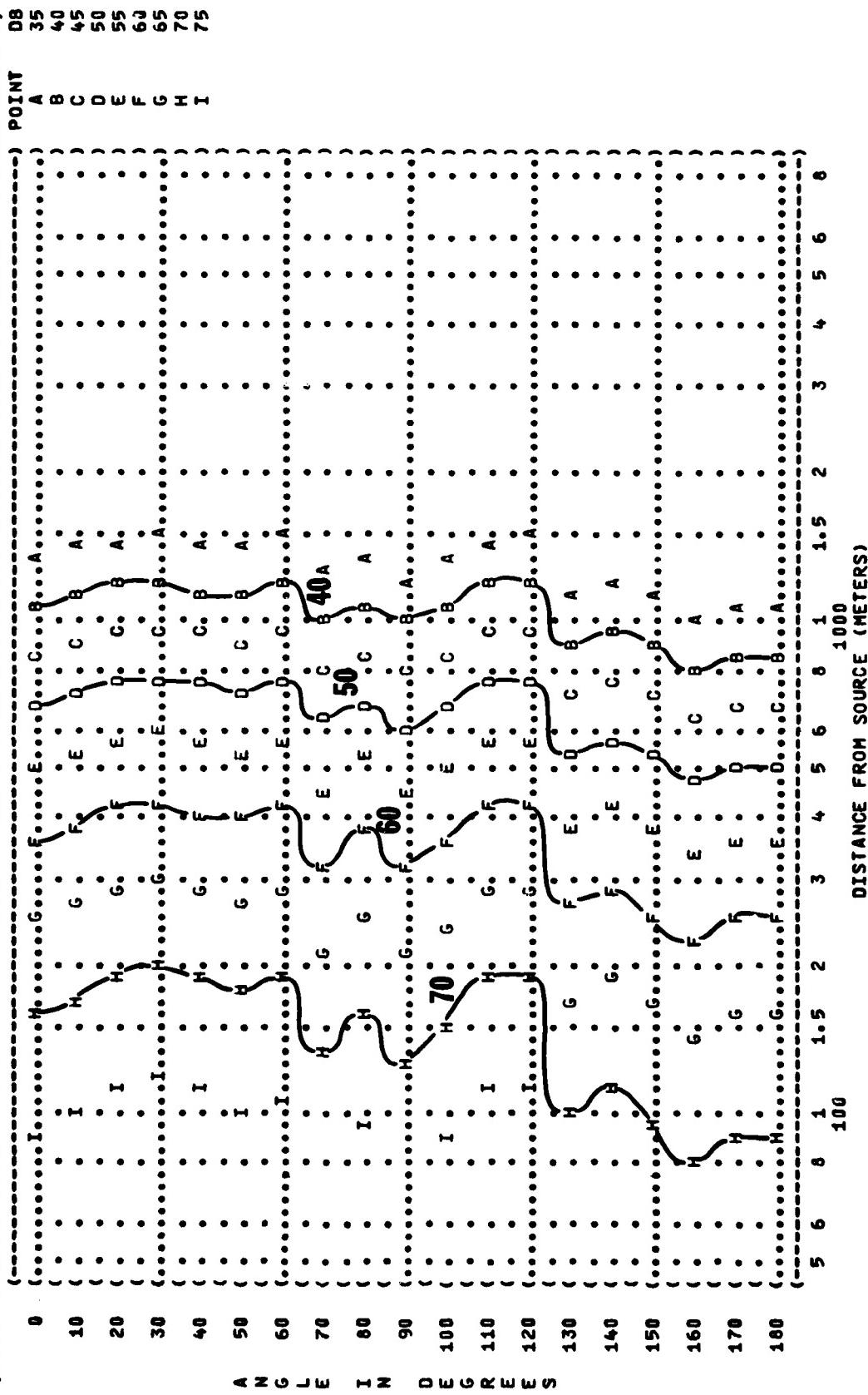


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
10
250 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE JAS-GE-5A
FAR FIELD NOISE

OPERATION:
(75% RPM ENGINE RUNUP
(SINGLE ENGINE
(GROUND RUNUP (SUPPRESSED)

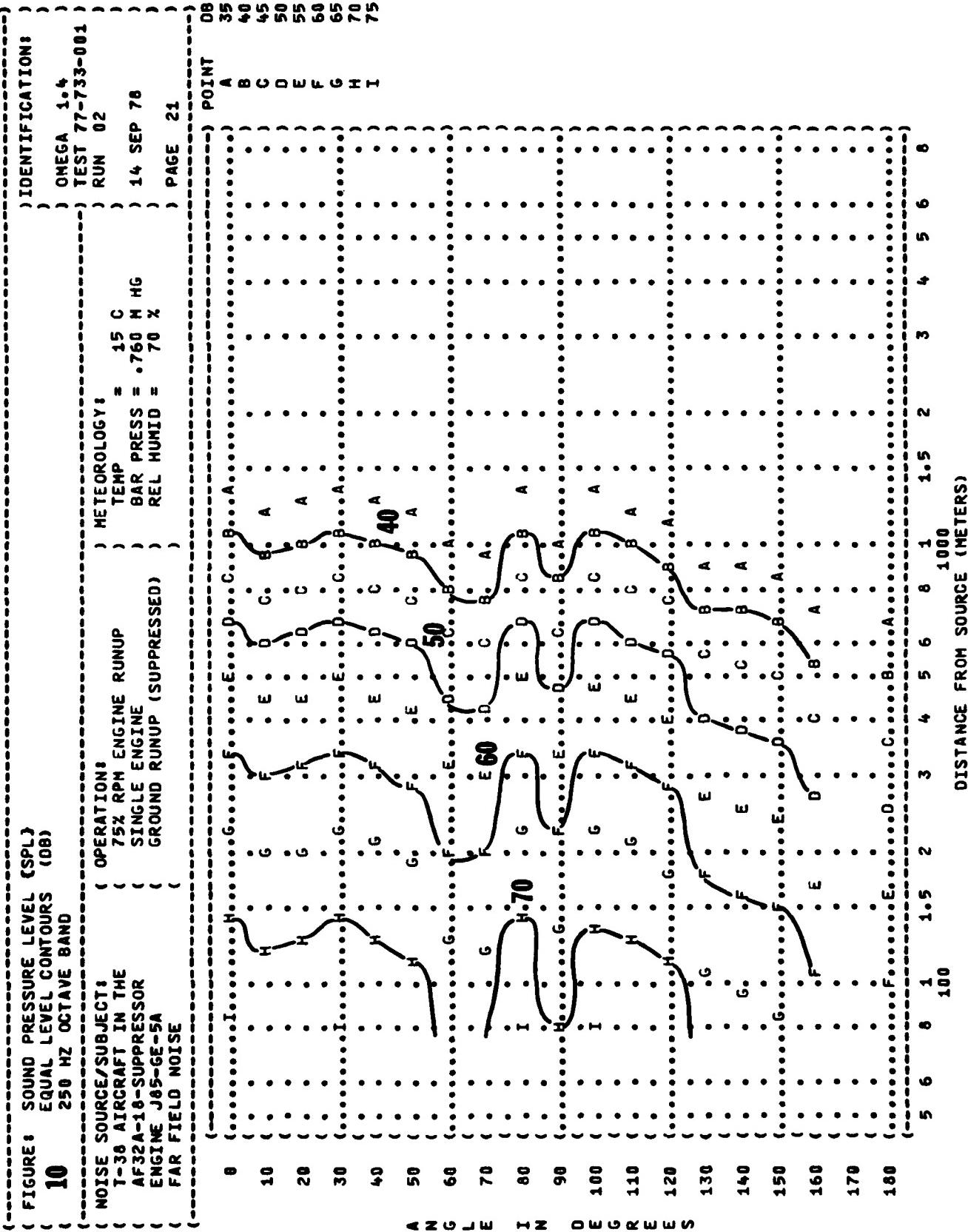


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
10
500 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: T-38 AIRCRAFT IN THE
AF32A-16-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

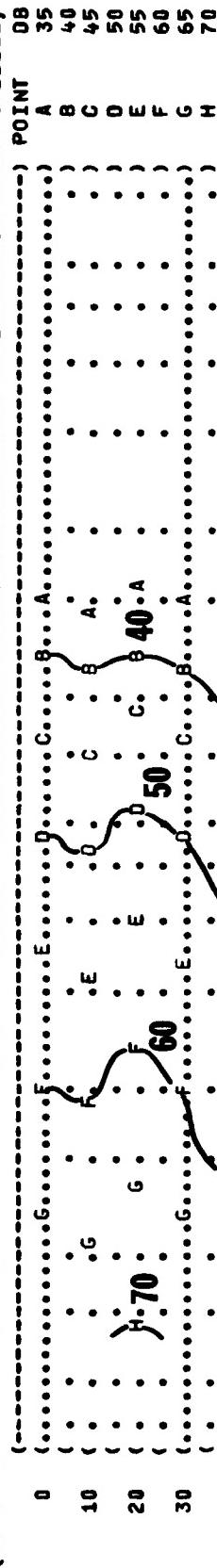
OPERATION:
75% RPM ENGINE RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 HG
REL HUMID = 70 %

TEST 77-733-001
RUN 02

OMEGA 1^{•4}

PAGE 22



A N D E G R E E S

100 110 120 130 140 150 160 170 180

100 110 120 130 140 150 160 170 180

100 110 120 130 140 150 160 170 180

100 110 120 130 140 150 160 170 180

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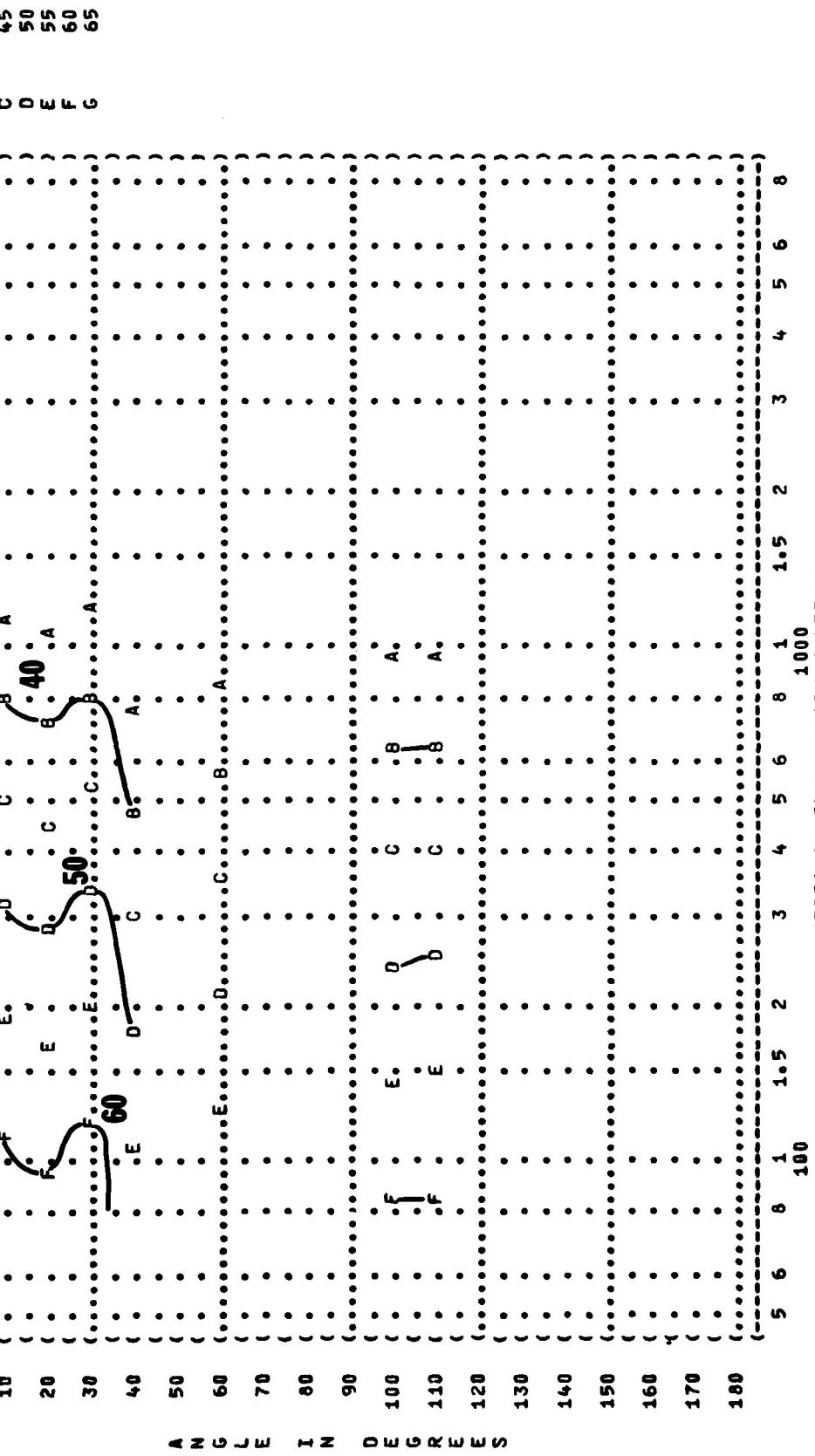
FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (dB)
1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-10-SUPPRESSOR
ENGINE JAS-GE-5A
FAR FIELD NOISE

OPERATION:
75% RPM ENGINE RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

PAGE 23



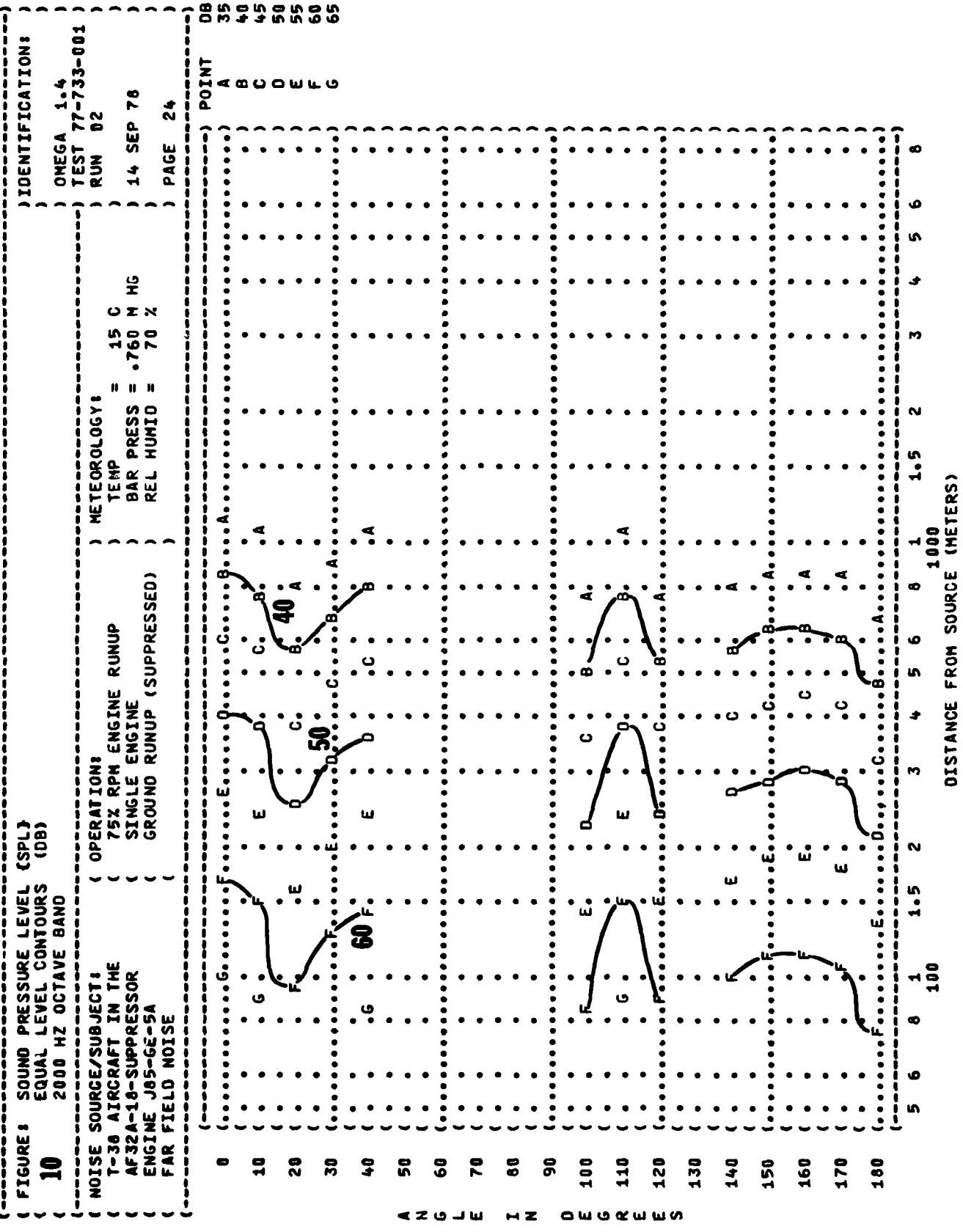


FIGURE 10
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
4000 Hz OCTAVE BAND

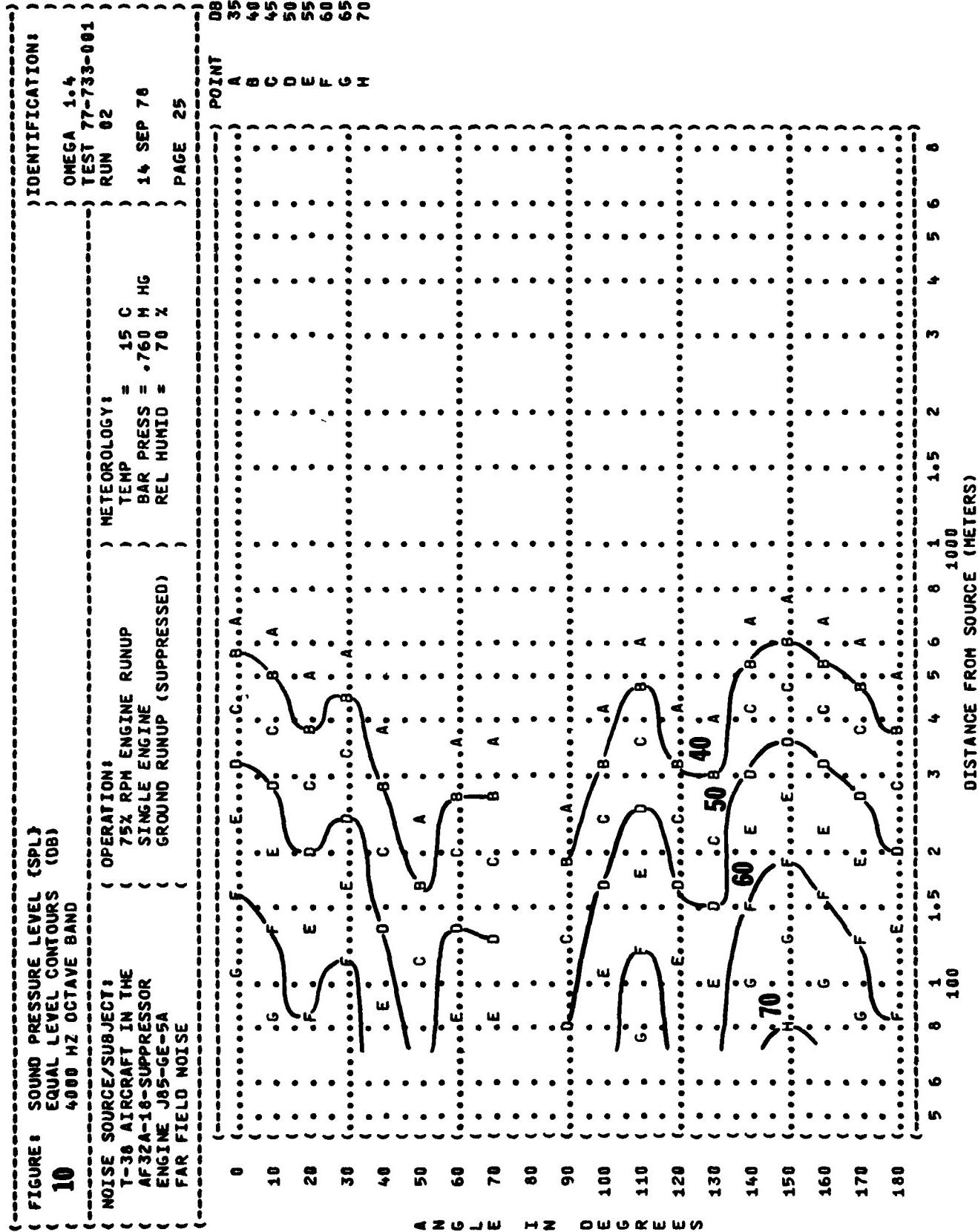


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT: T-38 AIRCRAFT IN THE AF32A-18-SUPPRESSOR ENGINE J85-GE-5A FAR FIELD NOISE

OPERATION: 75% RPM ENGINE RUNUP
SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST 77-733-001
RUN 02
PAGE 26

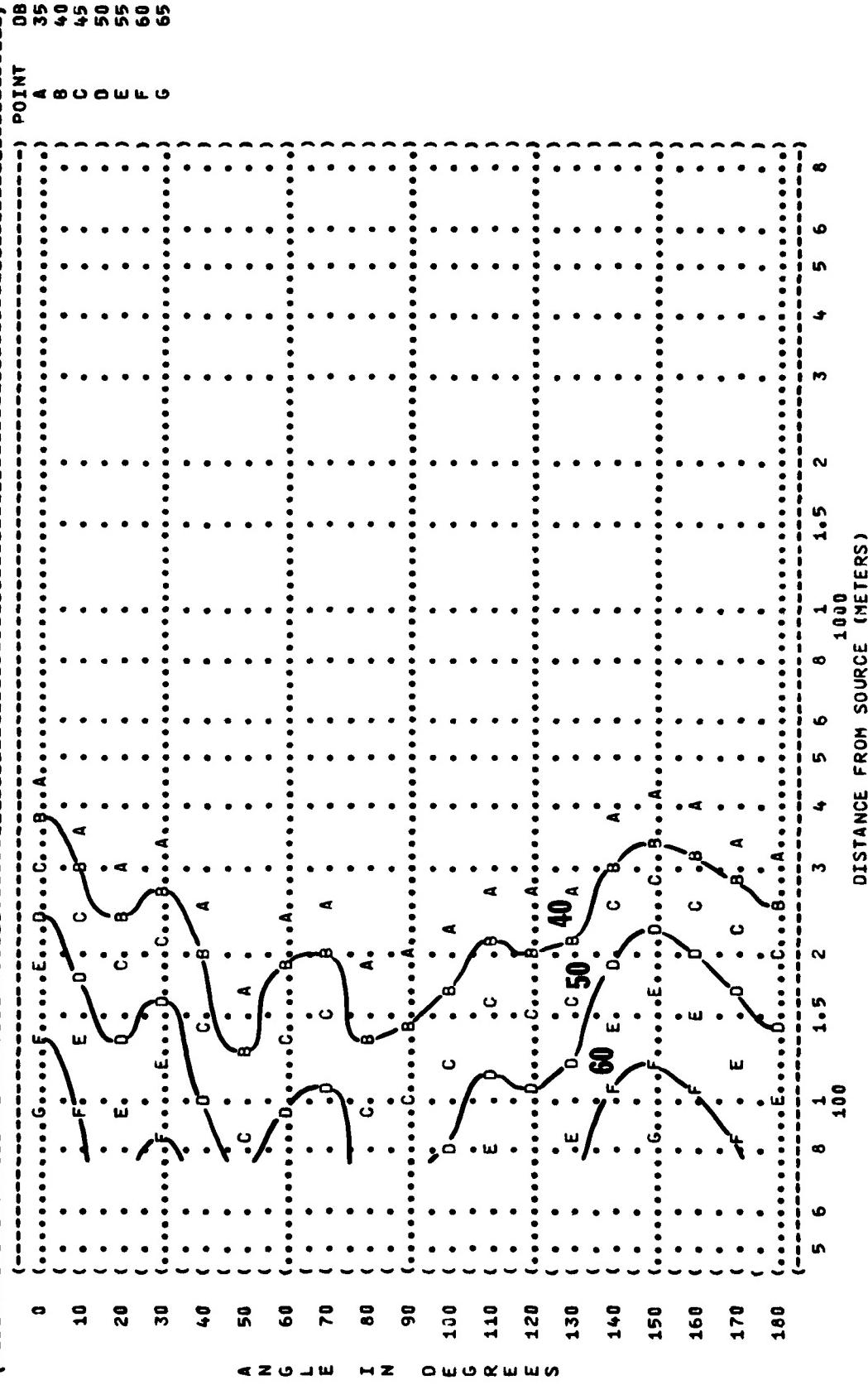


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (dB)
10
 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 94% RPM POWER RUNUP
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 TEST 77-733-001
 RUN 03
 PAGE 18

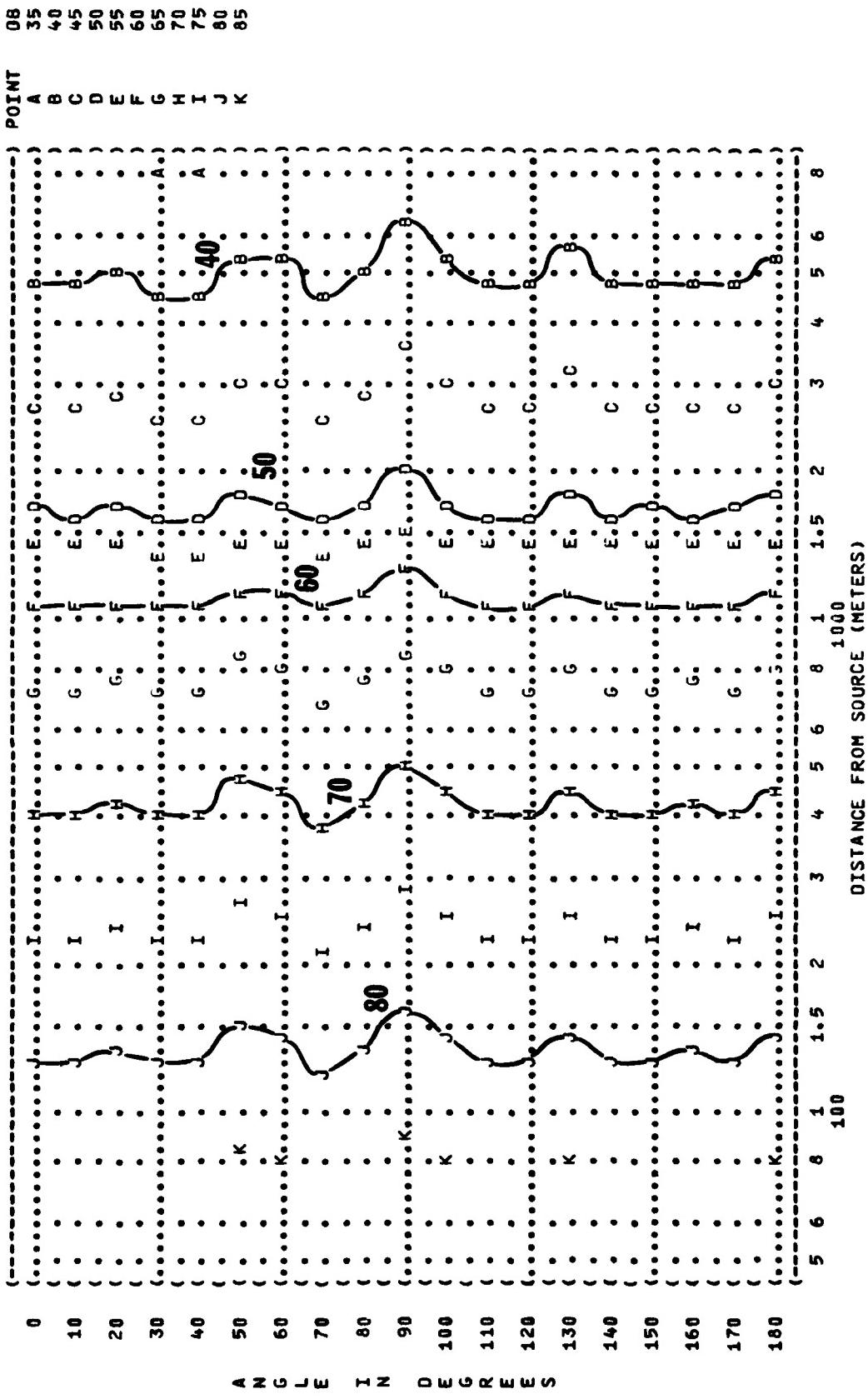


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
10
63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-10-SUPPRESSOR
ENGINE J65-GE-5A
FAR FIELD NOISE

OPERATION:
94% RPM POWER RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
14 SEP 76
PAGE 19

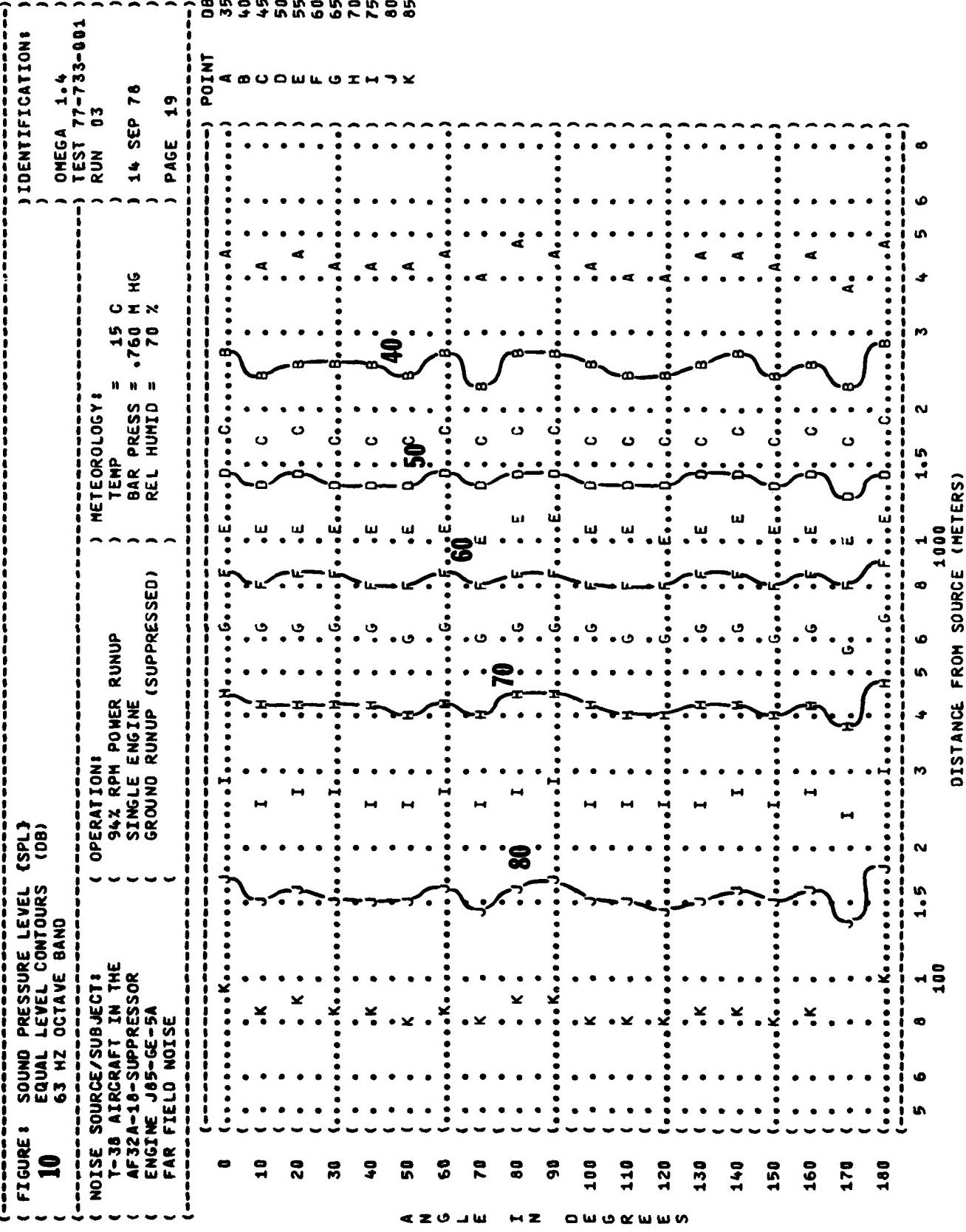
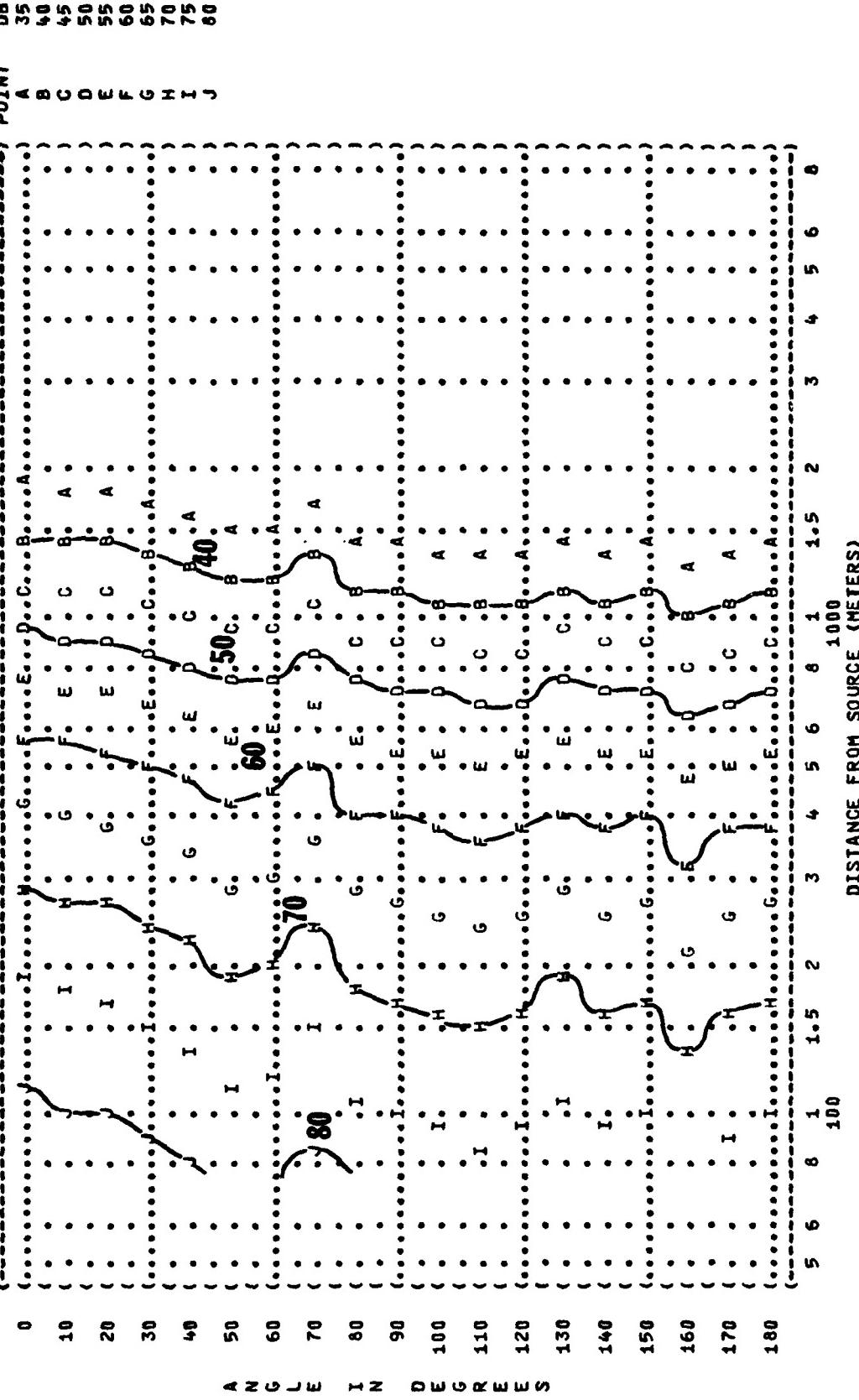


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
10 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-16-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
(94% RPM POWER RUNUP
(SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

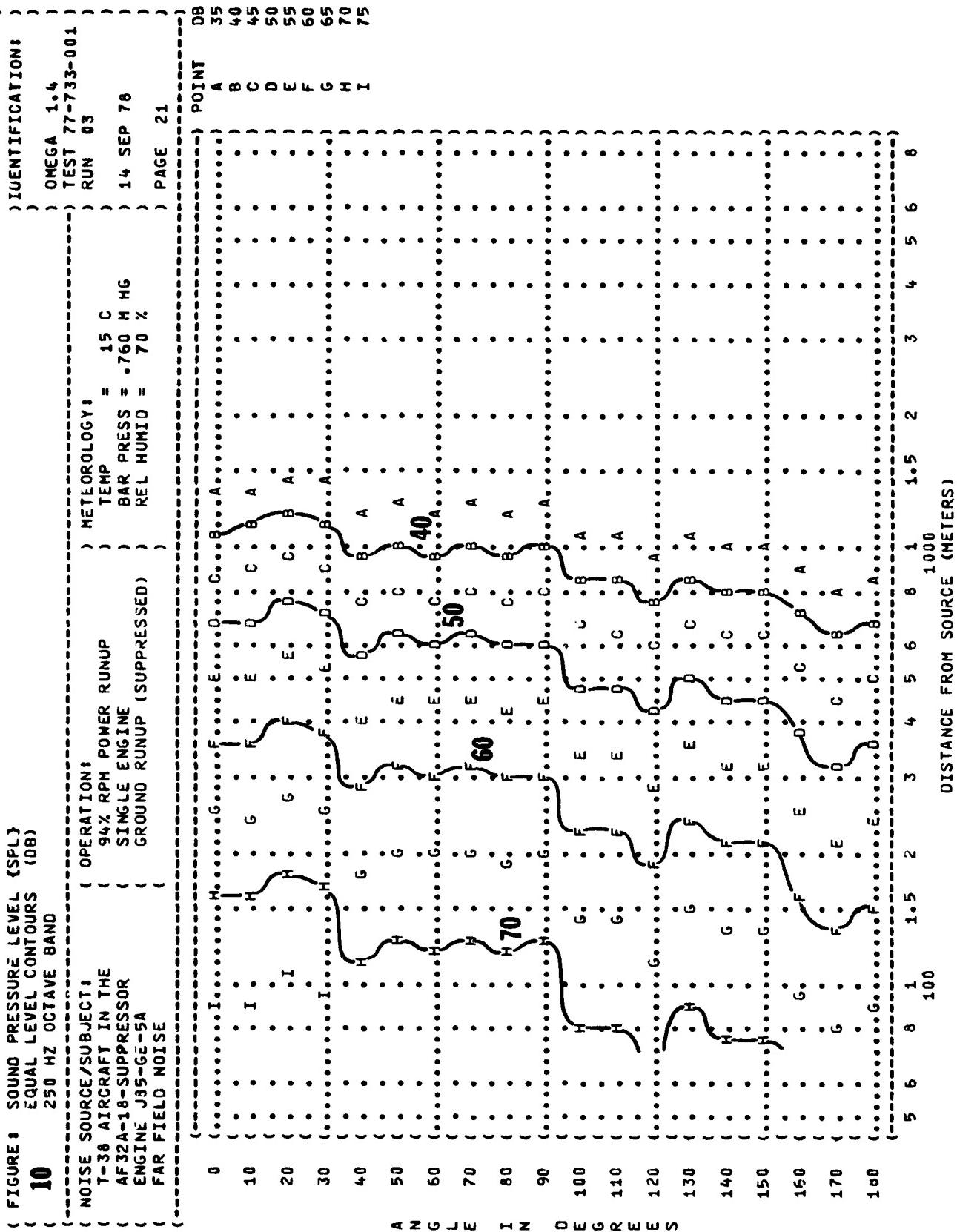
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %
TEST 77-733-001
RUN 03
PAGE 20



DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
10
250 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J35-GE-5A
FAR FIELD NOISE



1. SOURCE PRESSURE LEVEL (SPL)
2. DUAL LEVEL CONTOURS (DB)
3. 100 Hz OCTAVE BAND

4. SUBJECT:
1-10 AIRCRAFT IN THE
AV 32A-10-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:

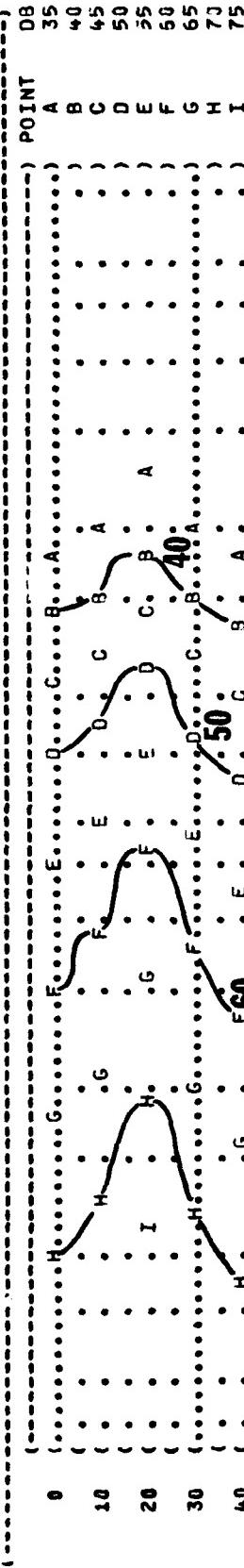
(94% RPM POWER RUNUP
(SINGLE ENGINE
(GROUND RUNUP (SUPPRESSED)

IDENTIFICATION:

OMEGA 1^{0.4}
RUN 03

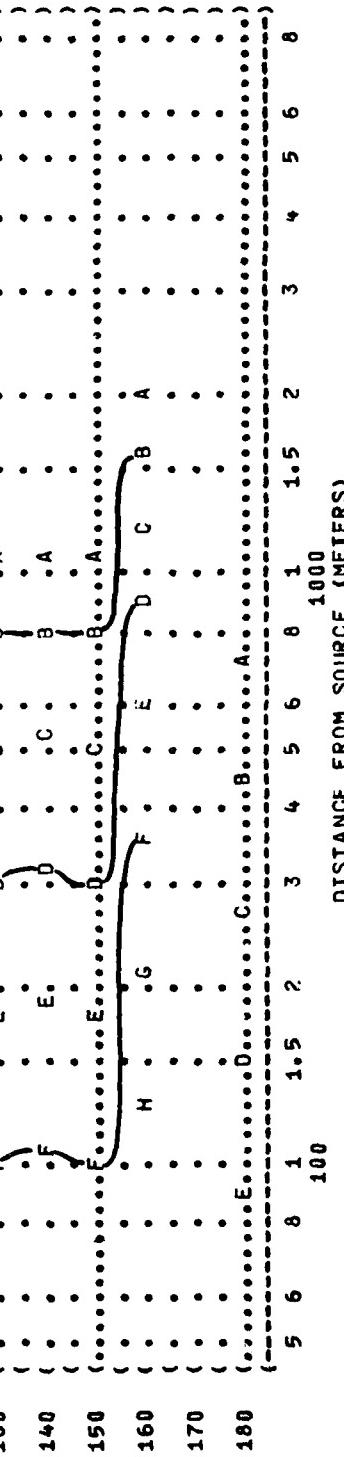
TEST 77-733-001
14 SEP 78

PAGE 22



A N S E W 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

78



DISTANCE FROM SOURCE (METERS)

1000

FIGURE: SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS
1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:

94% RPM POWER RUNUP
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST

77-733-001

RUN

03

14 SEP 78

PAGE

23

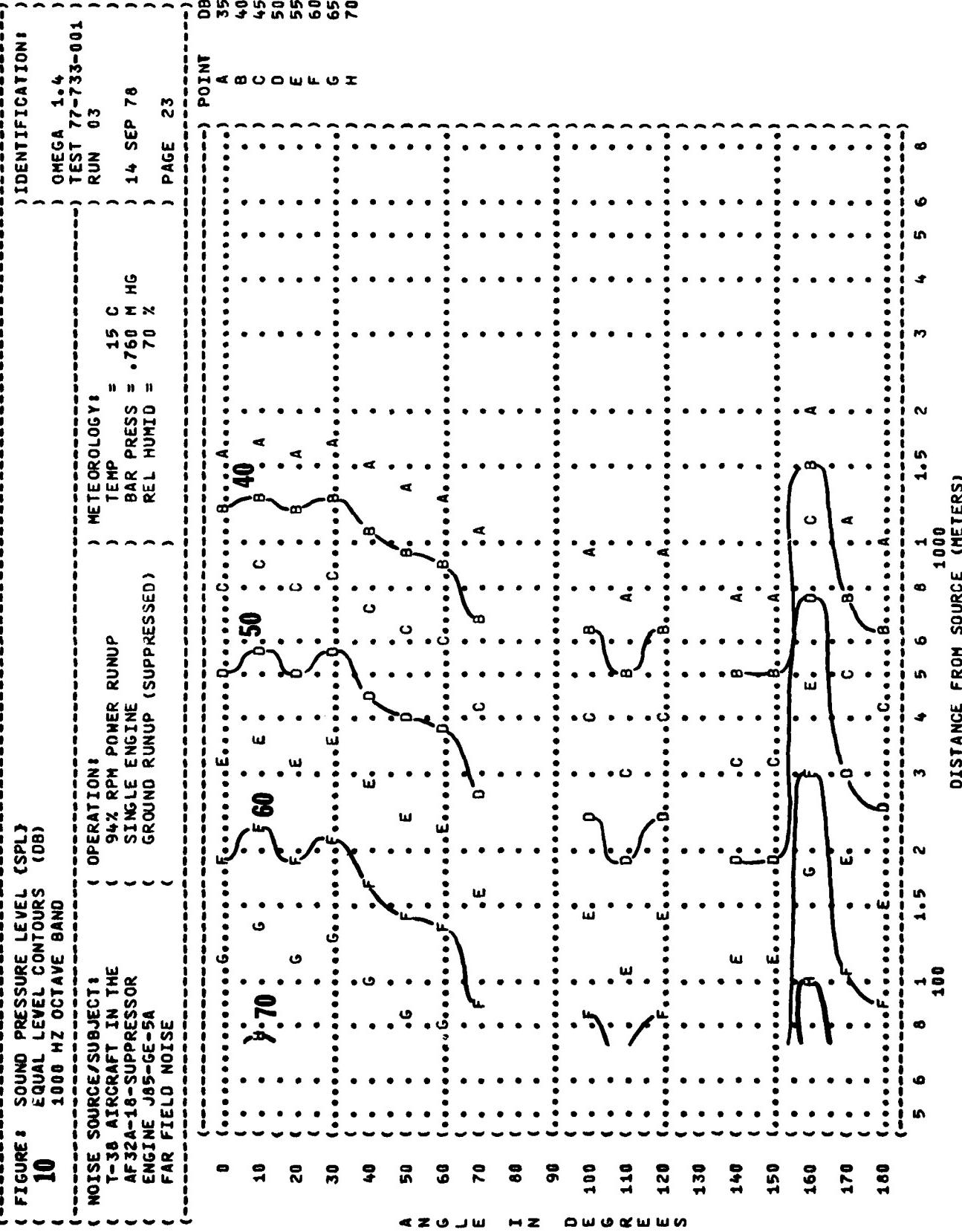


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)
2000 Hz OCTAVE BAND

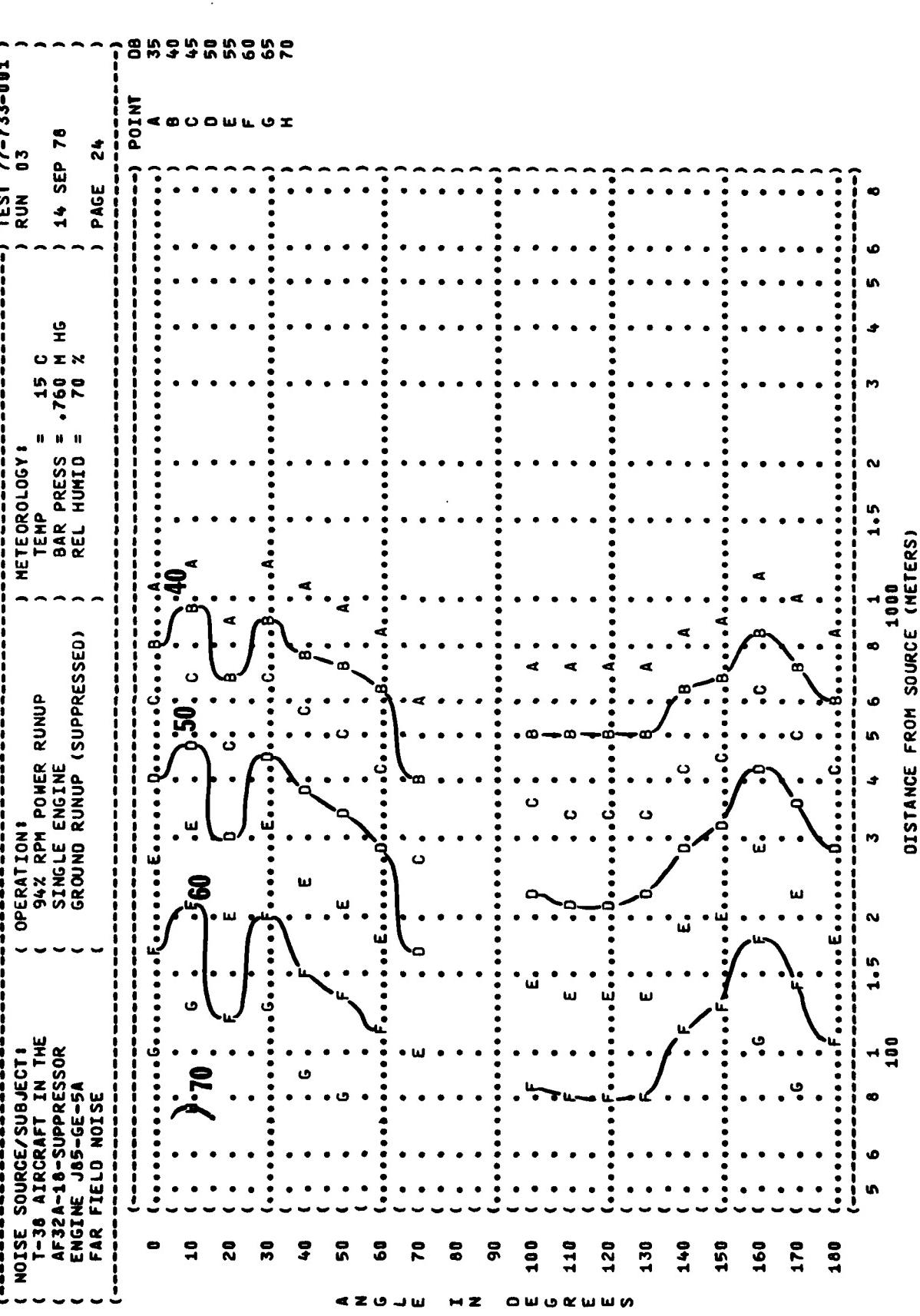
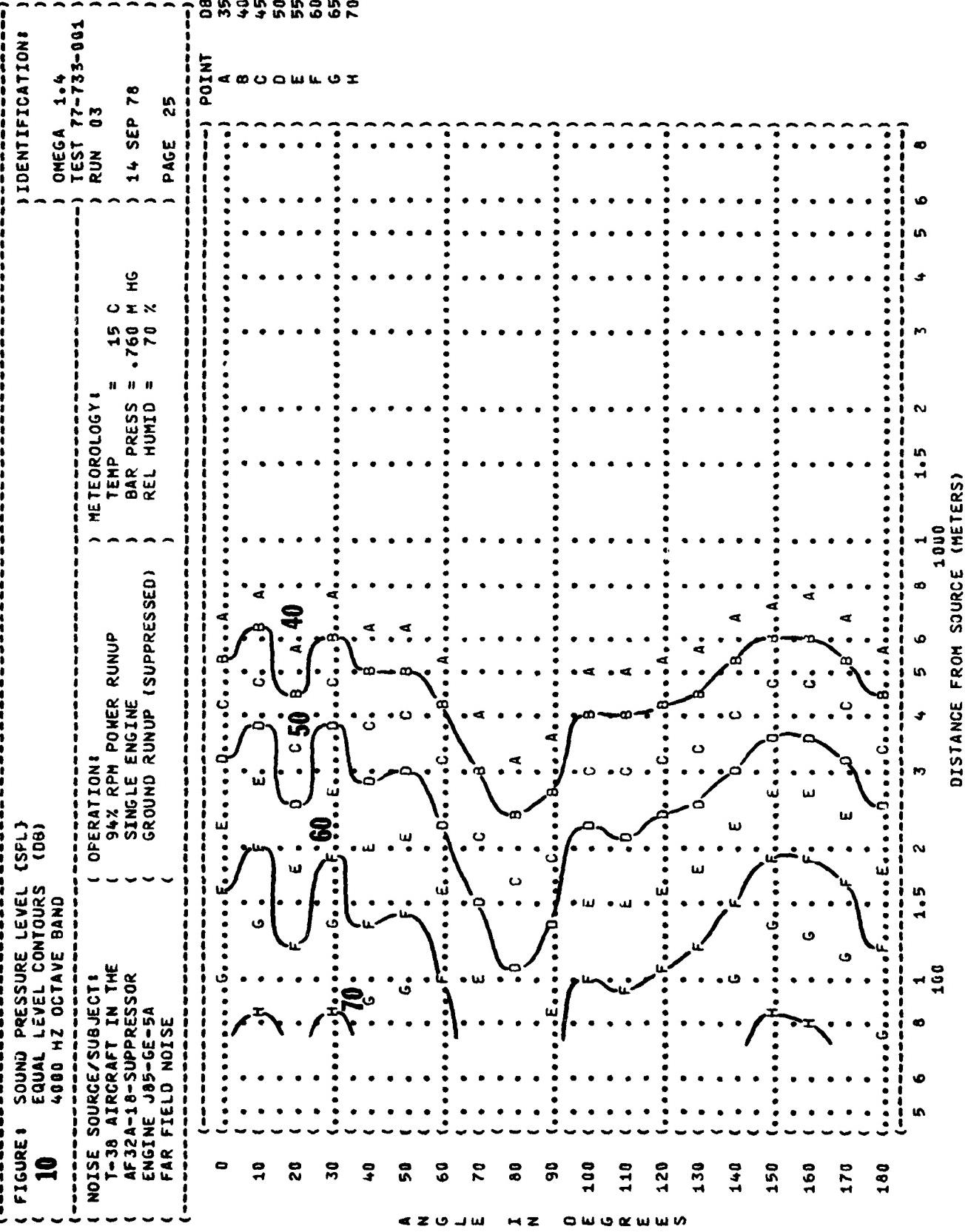


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS
4000 Hz OCTAVE BAND



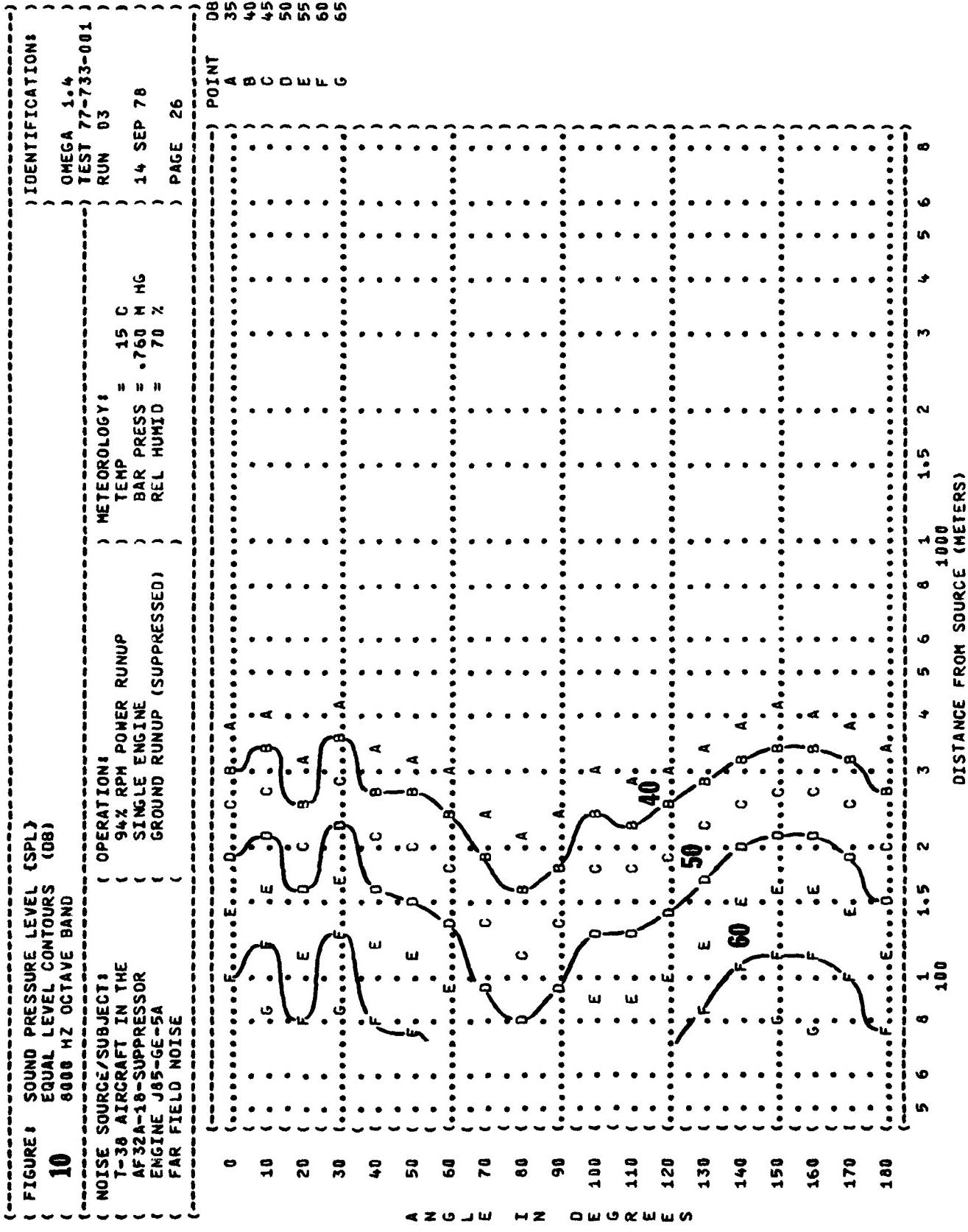


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
10 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION: MILITARY POWER 99.5 % RPM
SINGLE ENGINE GROUND RUNUP (SUPPRESSED)
METEOROLOGY: TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
TEST 77-733-001
RUN 04
14 SEP 78
PAGE 18

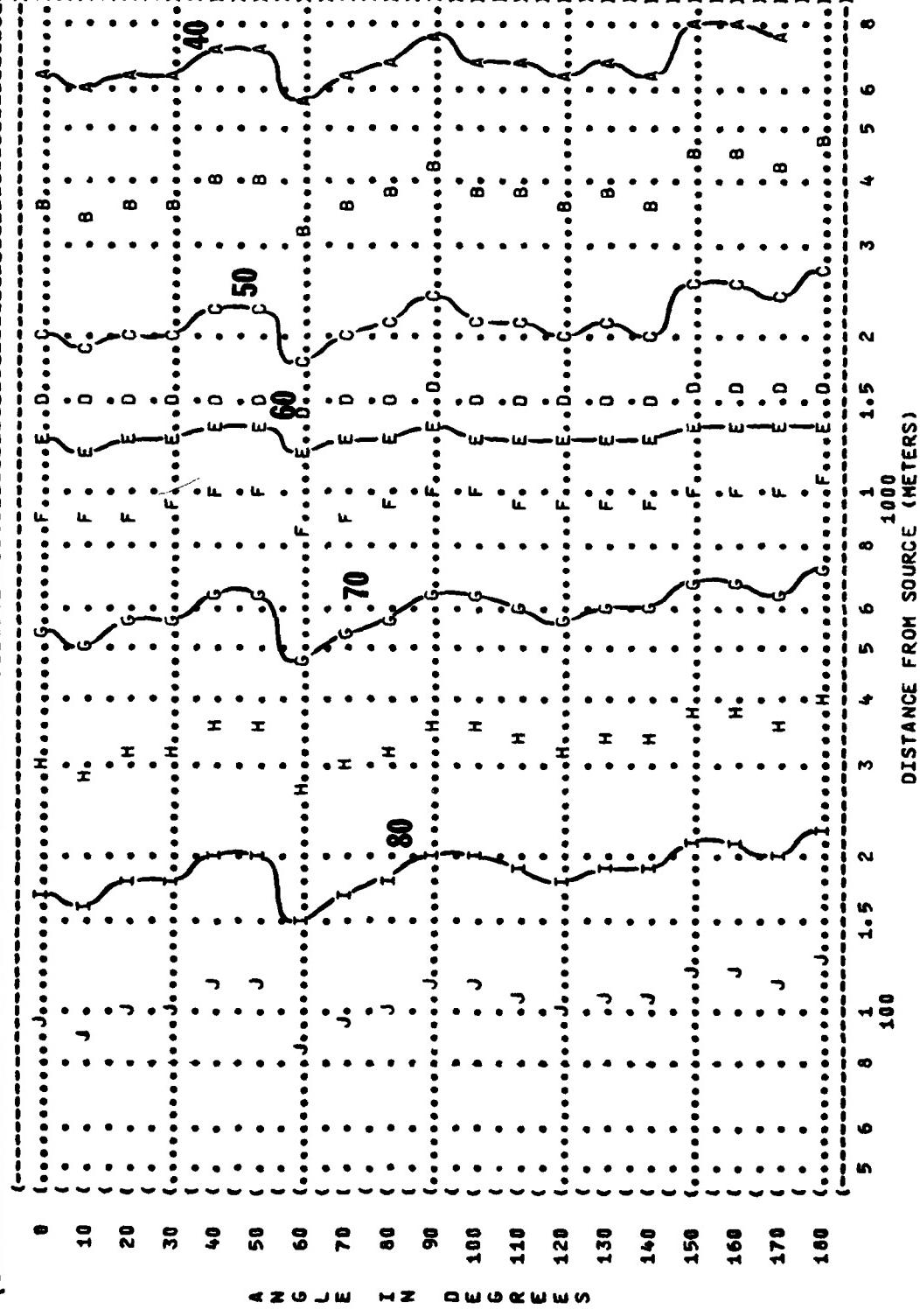


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)

10

63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-1B-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATIONS:
MILITARY POWER 99.5 % RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

TEST 77-733-001
RUN 04
14 SEP 78
PAGE 19

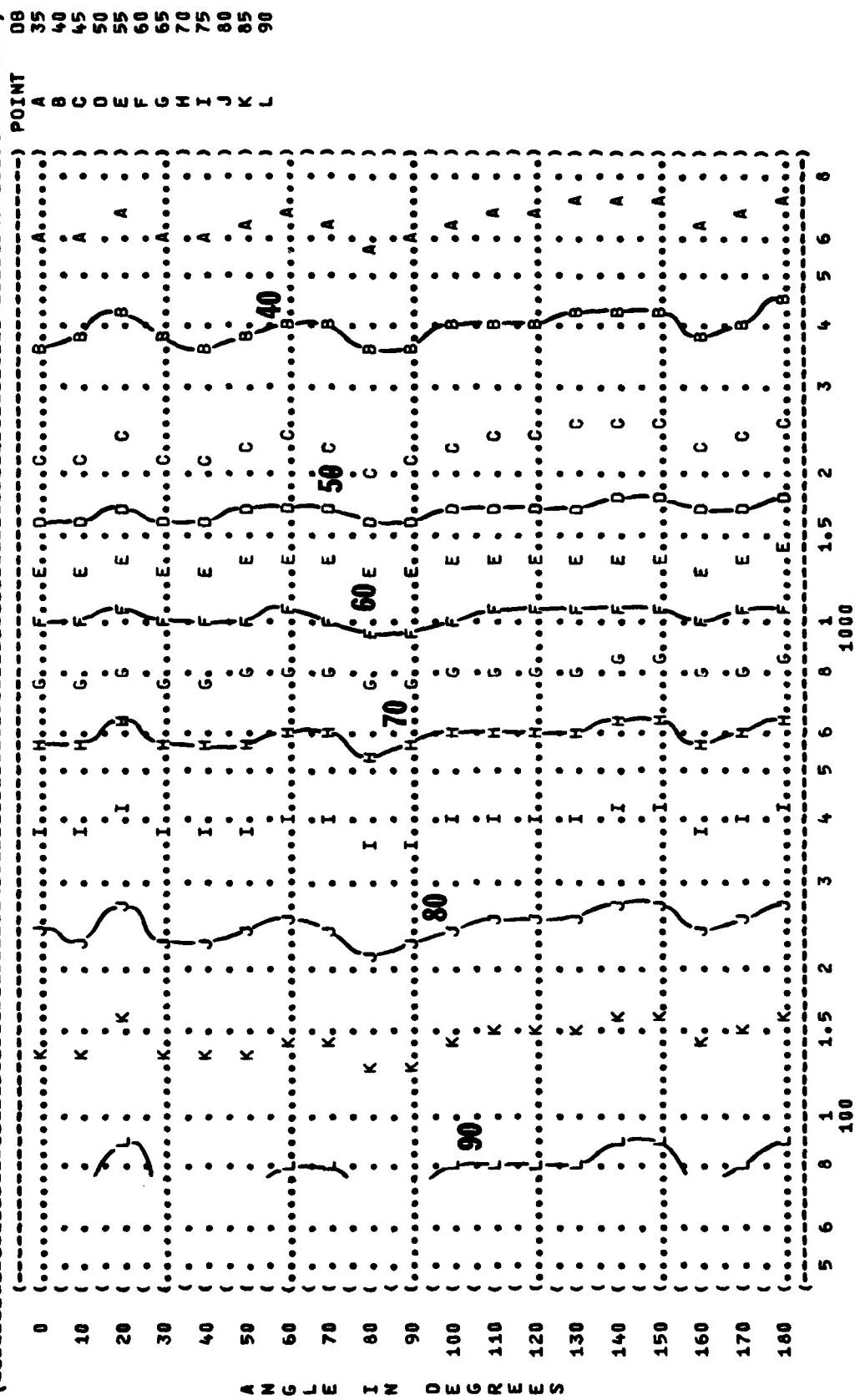


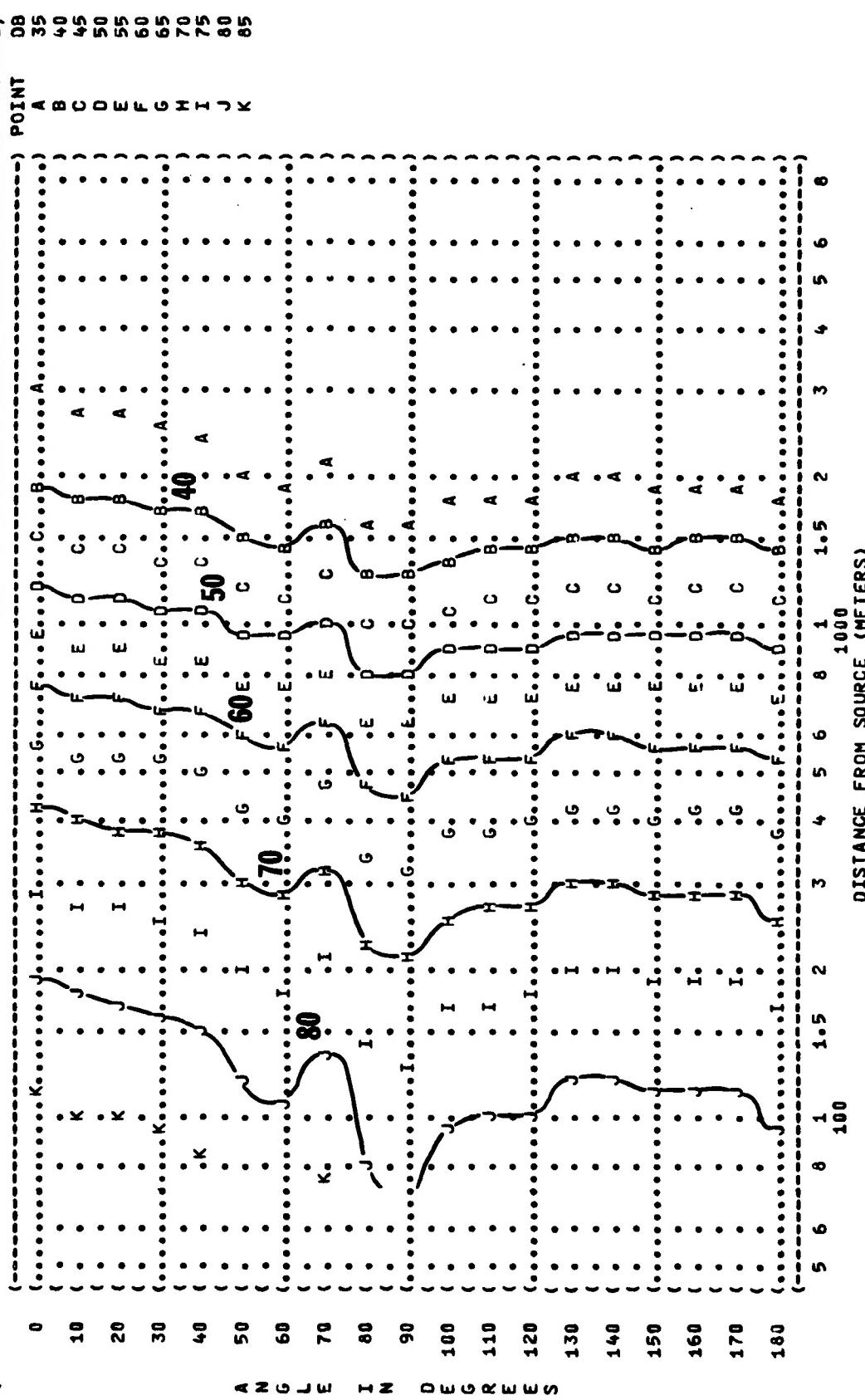
FIGURE: SOUND PRESSURE LEVEL (SPL)
10
 EQUAL LEVEL CONTOURS
 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MILITARY POWER 99.5 % RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-733-001
 RUN 04
 14 SEP 78
 PAGE 20



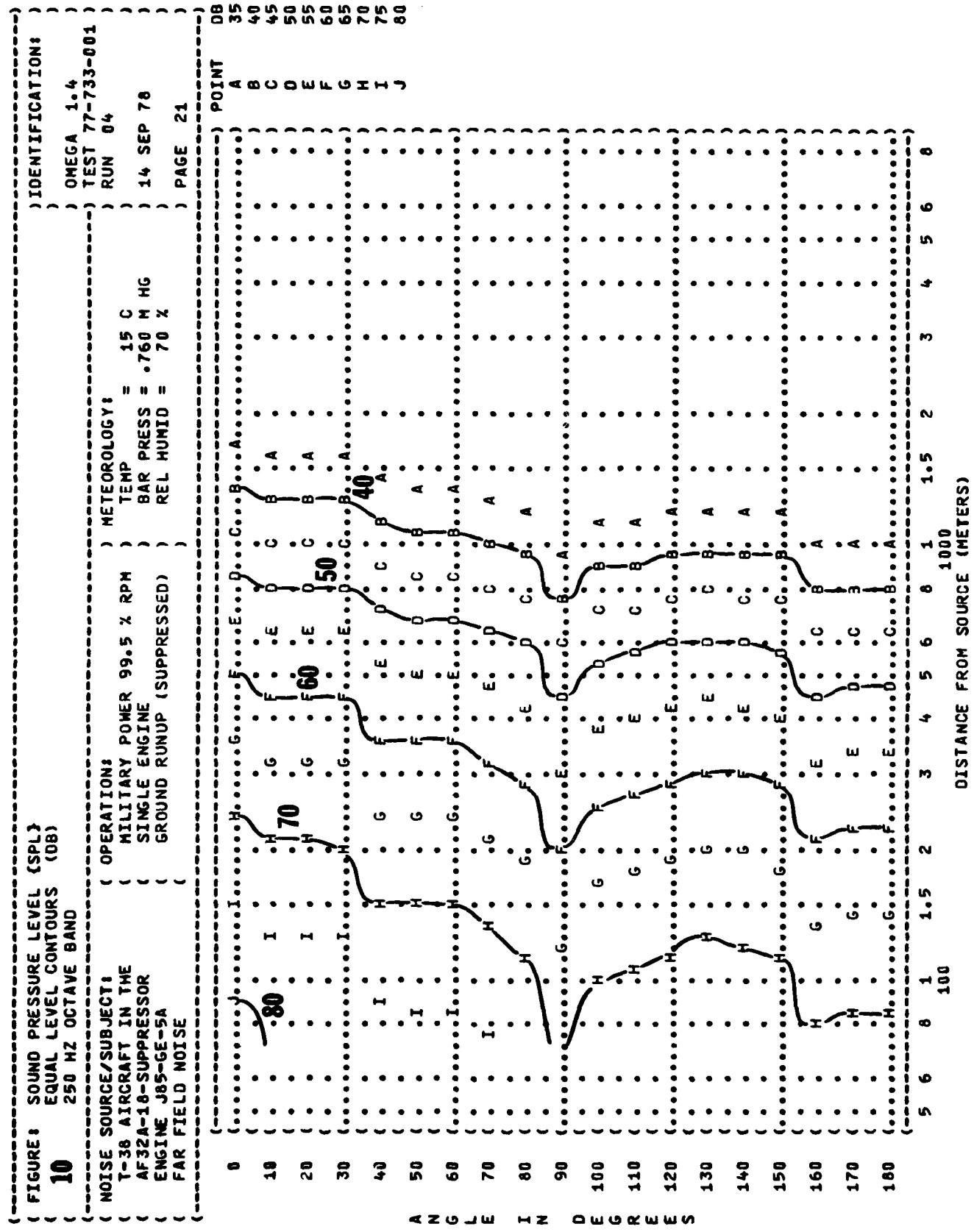


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS
10
 500 Hz OCTAVE BAND

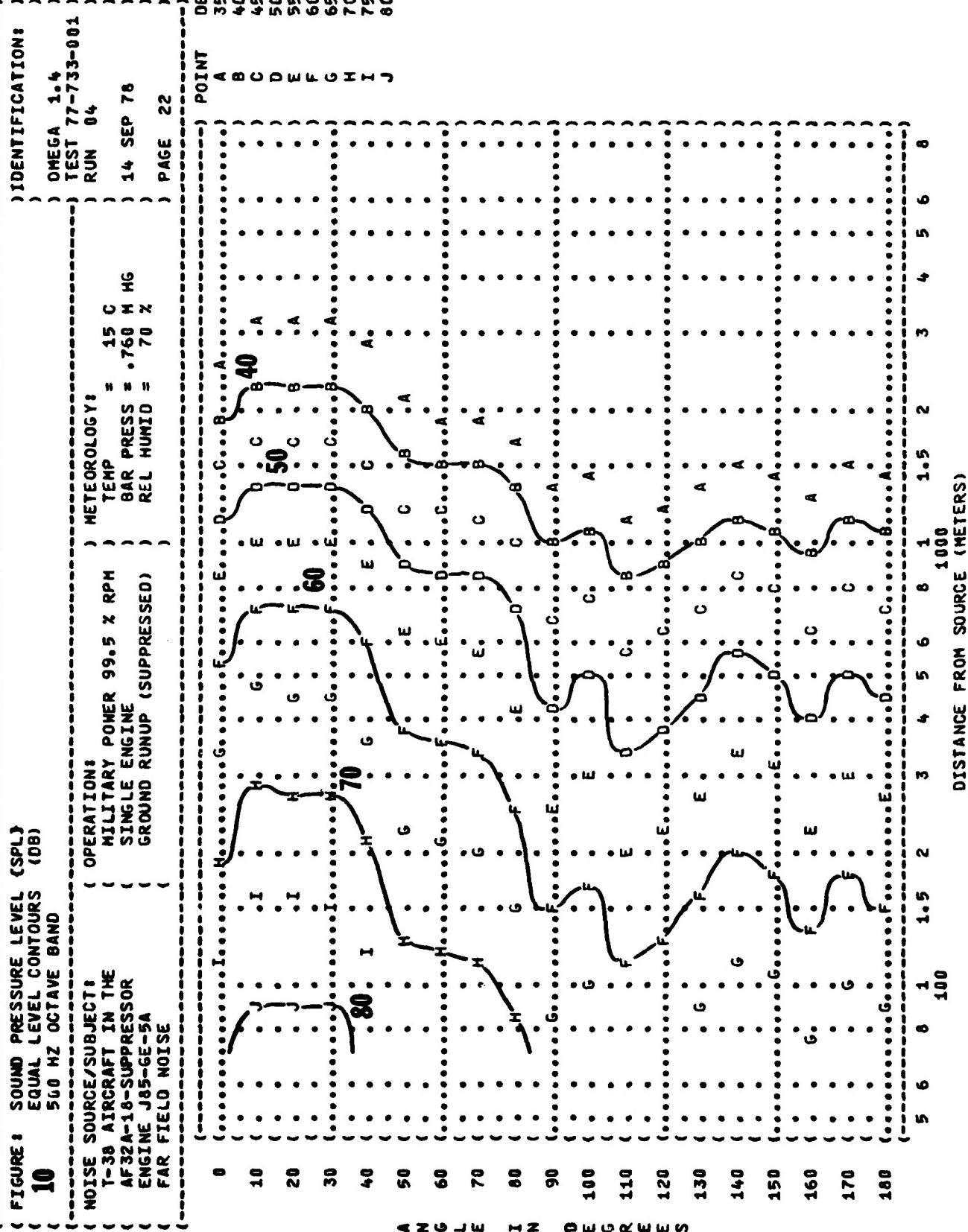


FIGURE: SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MILITARY POWER 99.5 % RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

IDENTIFICATIONS

OMEGA 1^{•4}

RUN 04

TEST 77-733-001

14 SEP 78

TEMP = 15 C

BAR PRESS = .760 Hg

REL HUMID = 70 %

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METEOROLOGY:
 POINT DB

A 35

B 40

C 45

D 50

E 55

F 60

G 65

H 70

I 75

A N L E R S D G F E H I G F E D C B A

S 100 110 120 130 140 150 160 170 180

DISTANCE FROM SOURCE (METERS)

1000

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)
 2000 Hz OCTAVE BAND

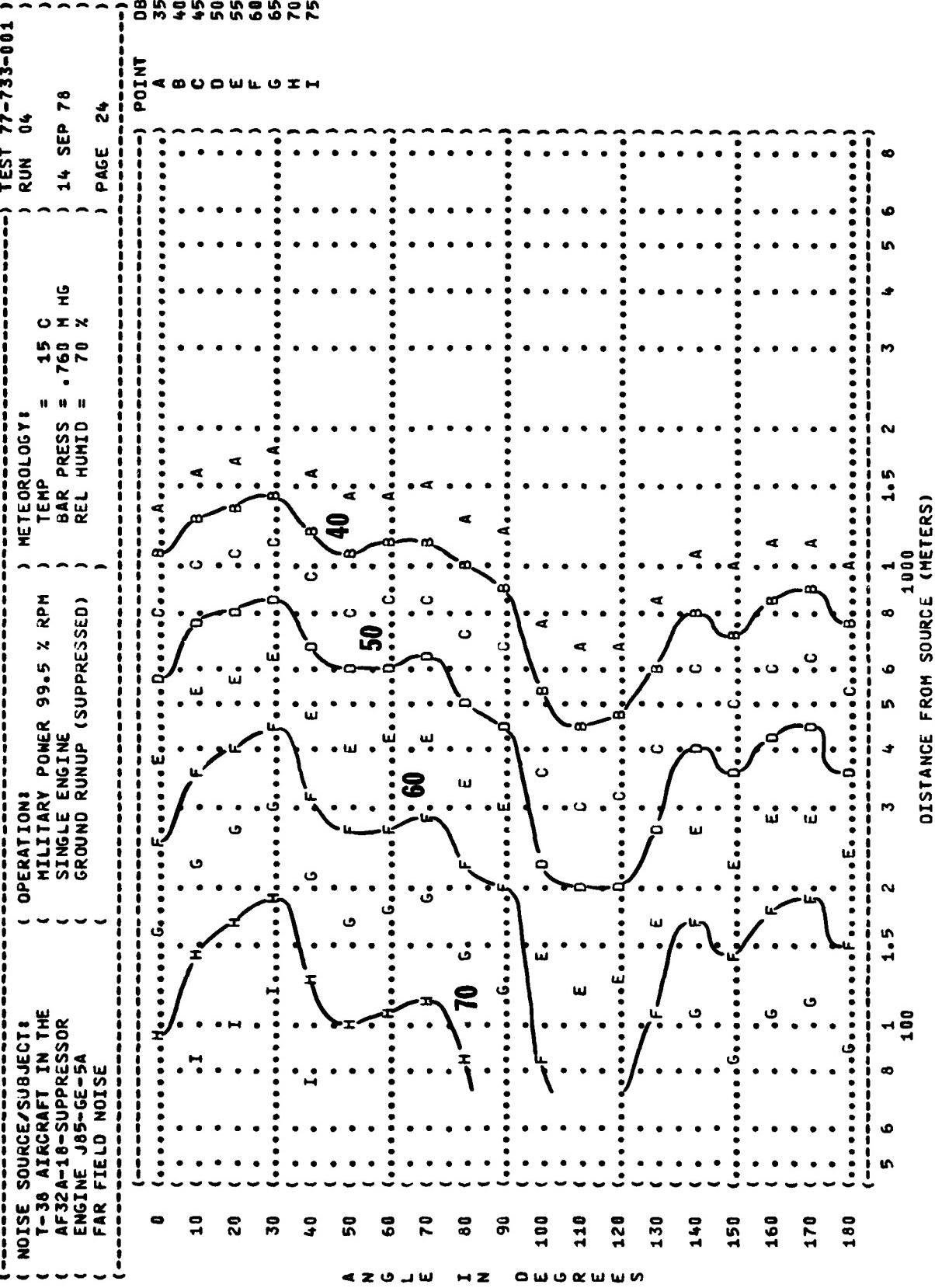
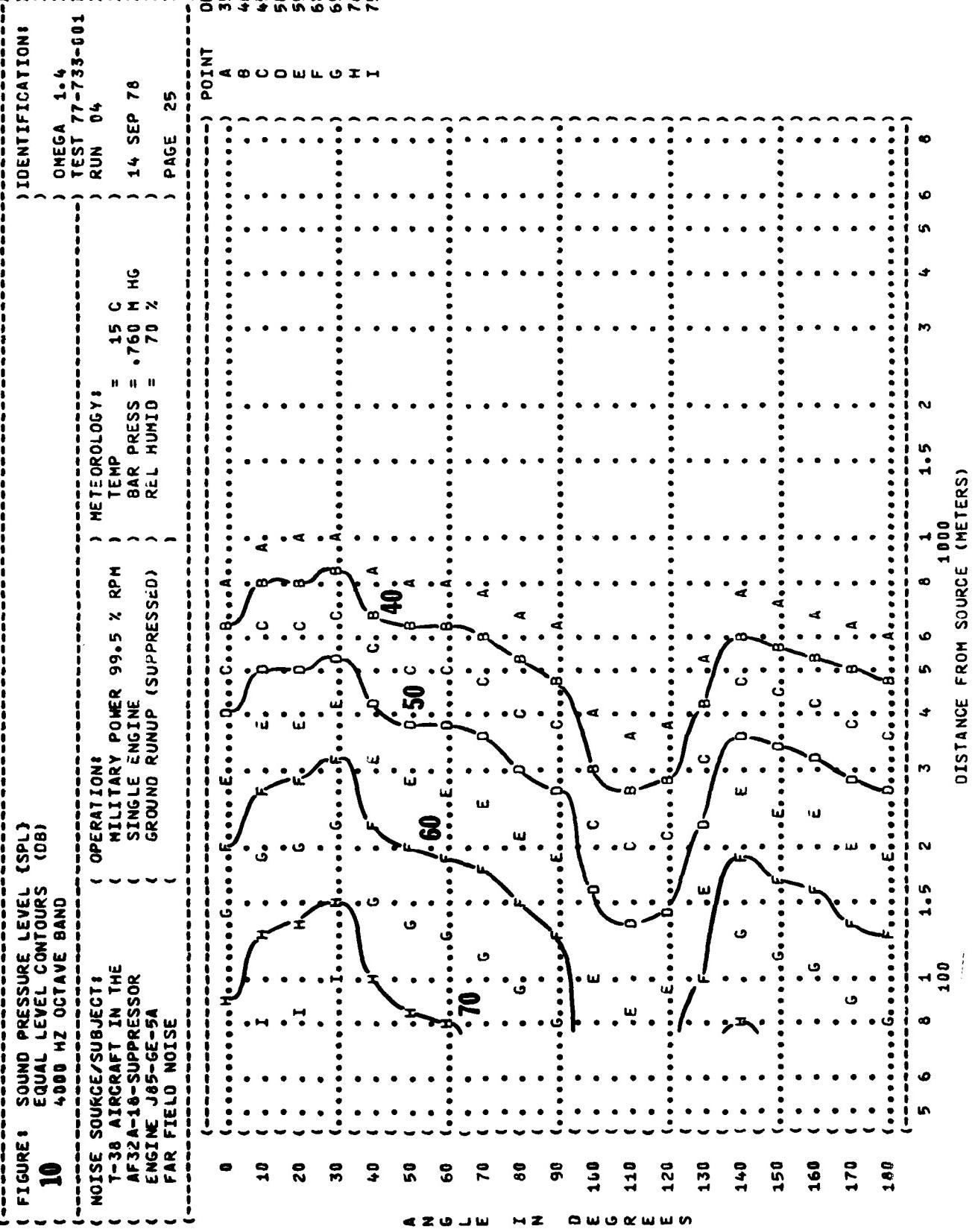


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
10
4000 Hz OCTAVE BAND



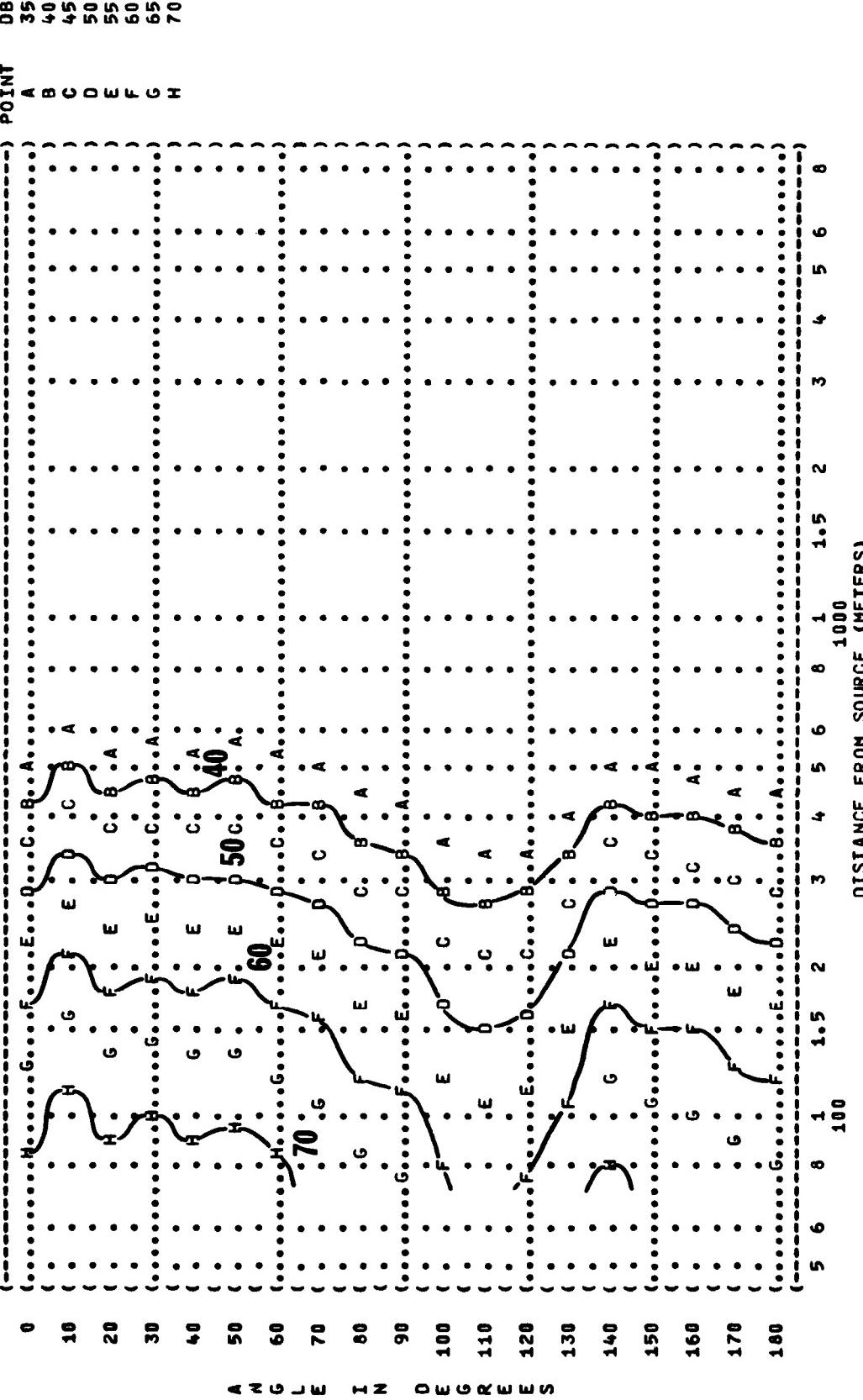
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
10
 8000 HZ OCTAVE BAND

(NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-18-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

(OPERATION:
 MILITARY POWER 99.5 % RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

(METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 Hg
 REL HUMID = 70 %

(TEST 77-733-001
 RUN 04
 14 SEP 78
 PAGE 26



AD-A079 868

AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OH F/G 1/3
USAF BIENVIRONMENTAL NOISE DATA HANDBOOK, VOLUME 12B. T-38 AIR--ETC(U)

UNCLASSIFIED

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FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
10
31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-16-SUPPRESSOR
ENGINE J45-GE-5A
FAR FIELD NOISE

OPERATIONS
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %
PAGE 16

IDENTIFICATION:
OMEGA 104
TEST 77-733-001
RUN 05

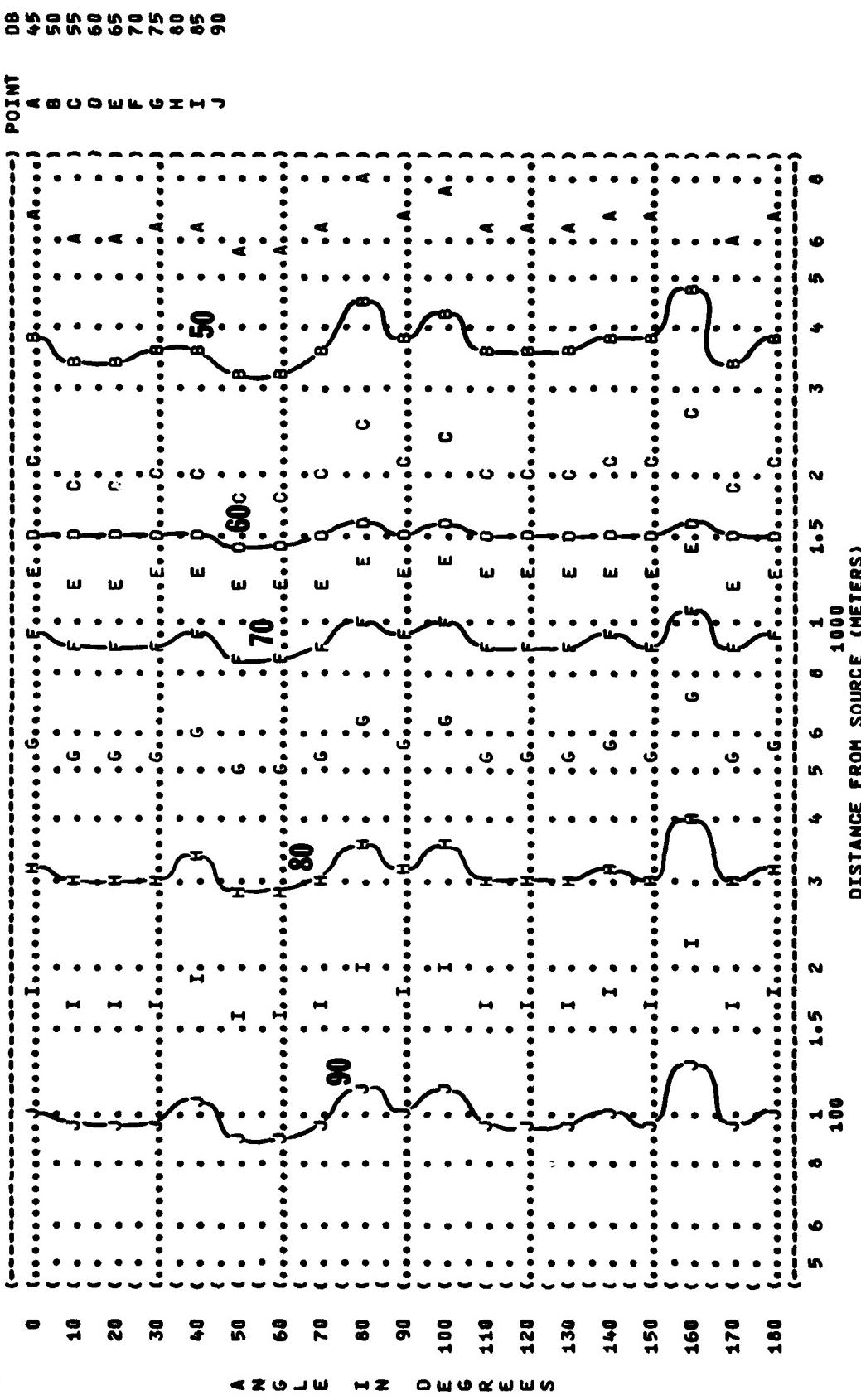
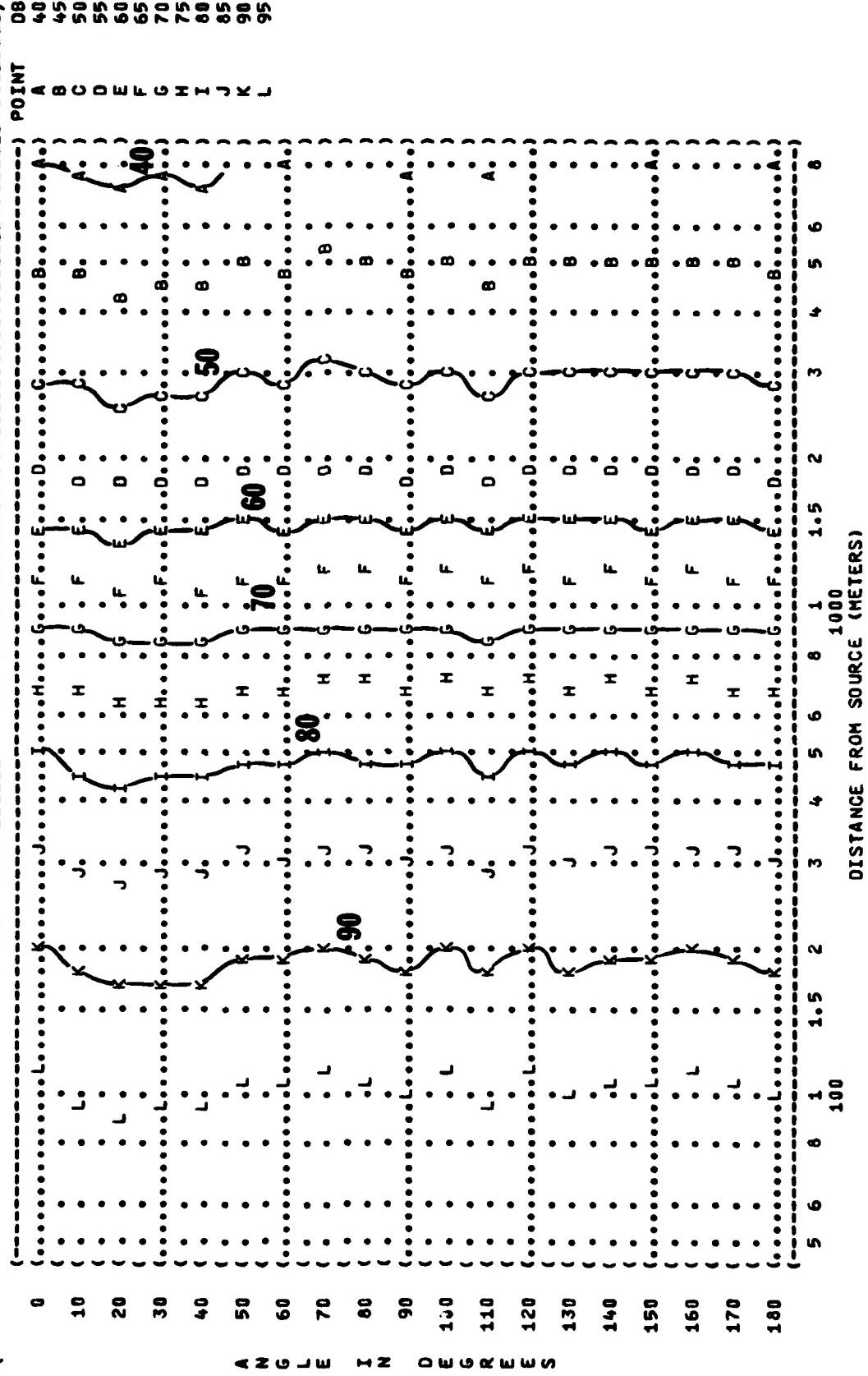


FIGURE: SOUND PRESSURE LEVEL (SPL)
10
 EQUAL LEVEL CONTOURS (DB)
 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-1A-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MAX POWER AFTERBURNER
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 MM HG
 REL HUMID = 70 %
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DISTANCE FROM SOURCE (METERS)

FIGURE : SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (DB)
 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-10-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MAX POWER AFTERBURNER
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 H HG
 REL HUMID = 70 %

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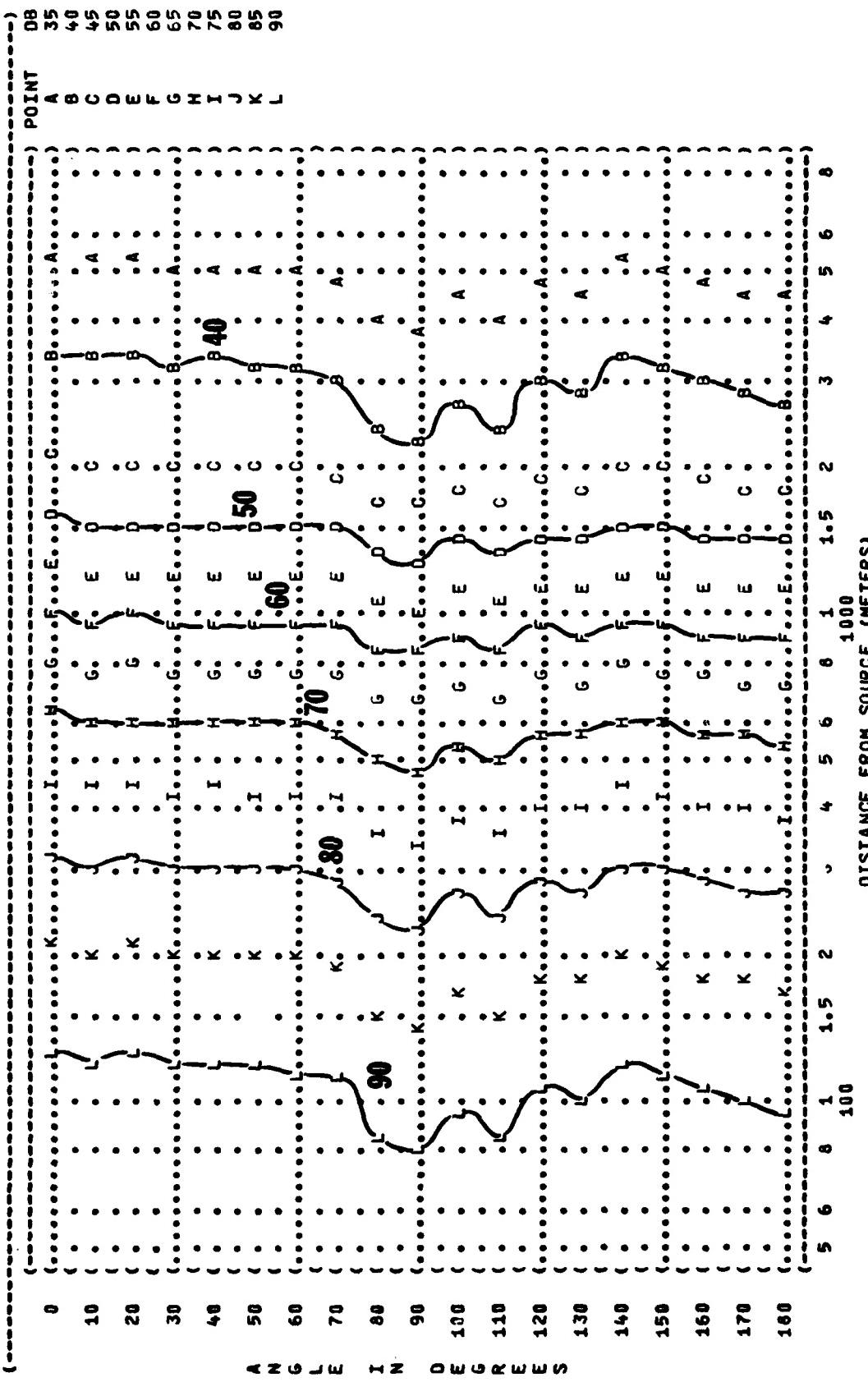


FIGURE : SOUND PRESSURE LEVEL (SPL)
10
 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-16-SUPPRESSOR
 ENGINE JAS-GE-5A
 FAR FIELD NOISE

OPERATION:
 MAX POWER AFTERBURNER

SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

RUN 05

TEST 77-733-001

OMEGA 1.4

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METEOROLOGY:
 TEMP = 15 C

BAR PRESS = .760 MM HG

REL HUMID = 70 %

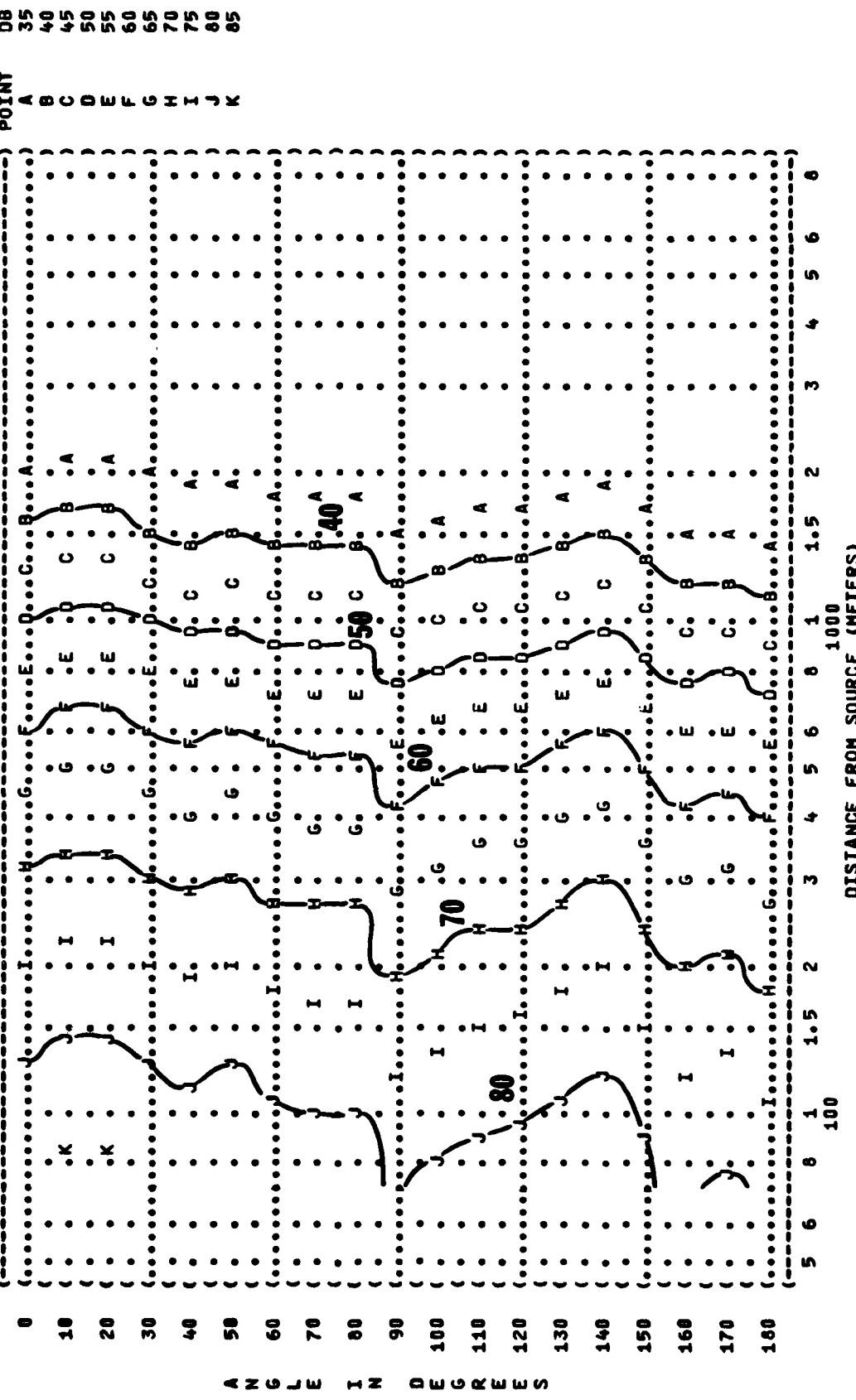


FIGURE 10
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)

T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J05-GE-5A
FAR FIELD NOISE

OPERATION:
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1-4
TEST 77-733-001
RUN 05

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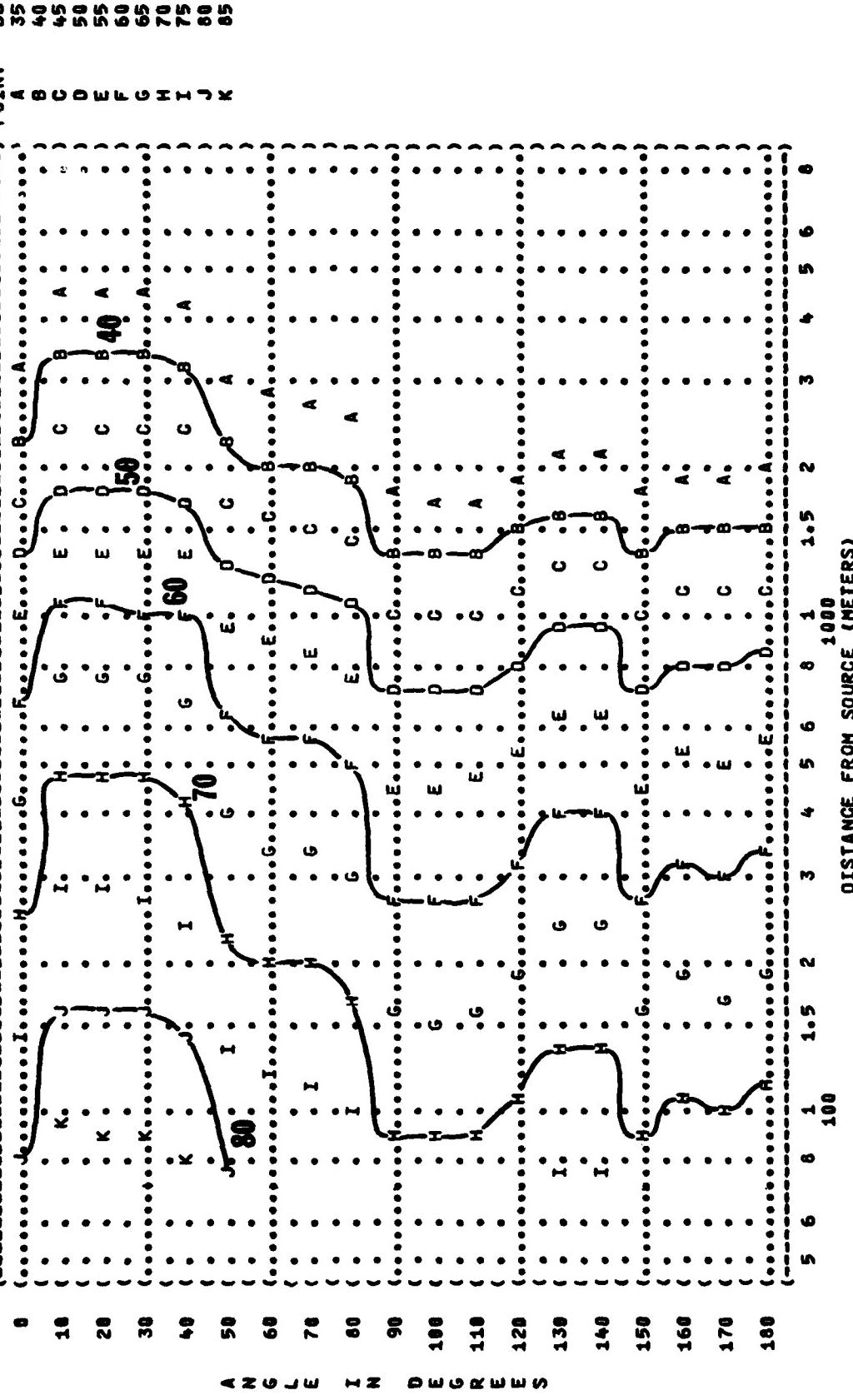


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS (dB)
1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-1B-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

) IDENTIFICATION:

OMEGA 1-4

TEST 77-733-001

RUN 05

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) OPERATION:

MAX POWER AFTERBURNER

SINGLE ENGINE

GROUND RUNUP (SUPPRESSED)

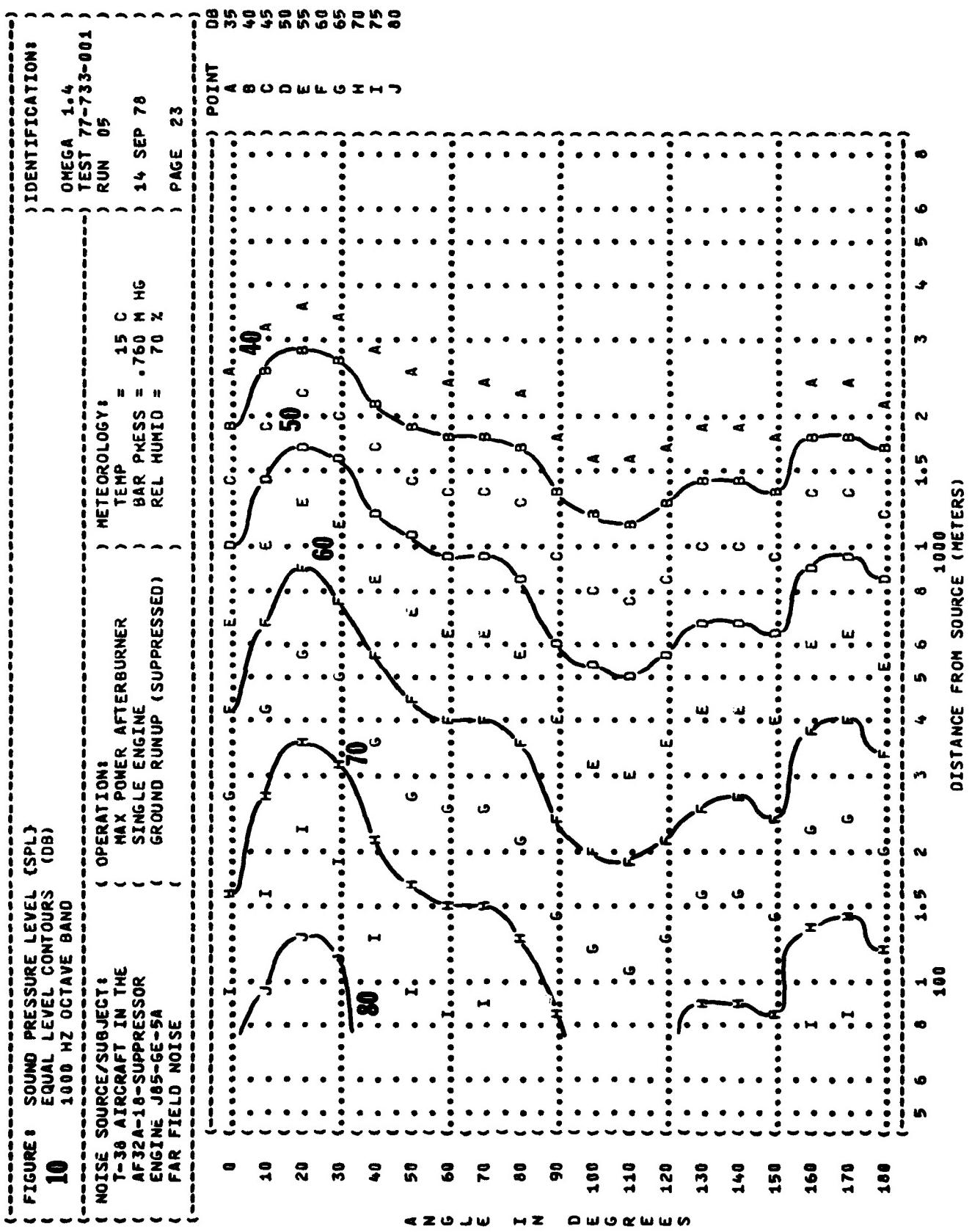


FIGURE : SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 T-38 AIRCRAFT IN THE
 AF32A-1B-SUPPRESSOR
 ENGINE J85-GE-5A
 FAR FIELD NOISE

OPERATION:
 MAX POWER AFTERBURNER
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 H MG
 REL HUMID = 70 %

TEST 77-733-001
 RUN 05
 14 SEP 78

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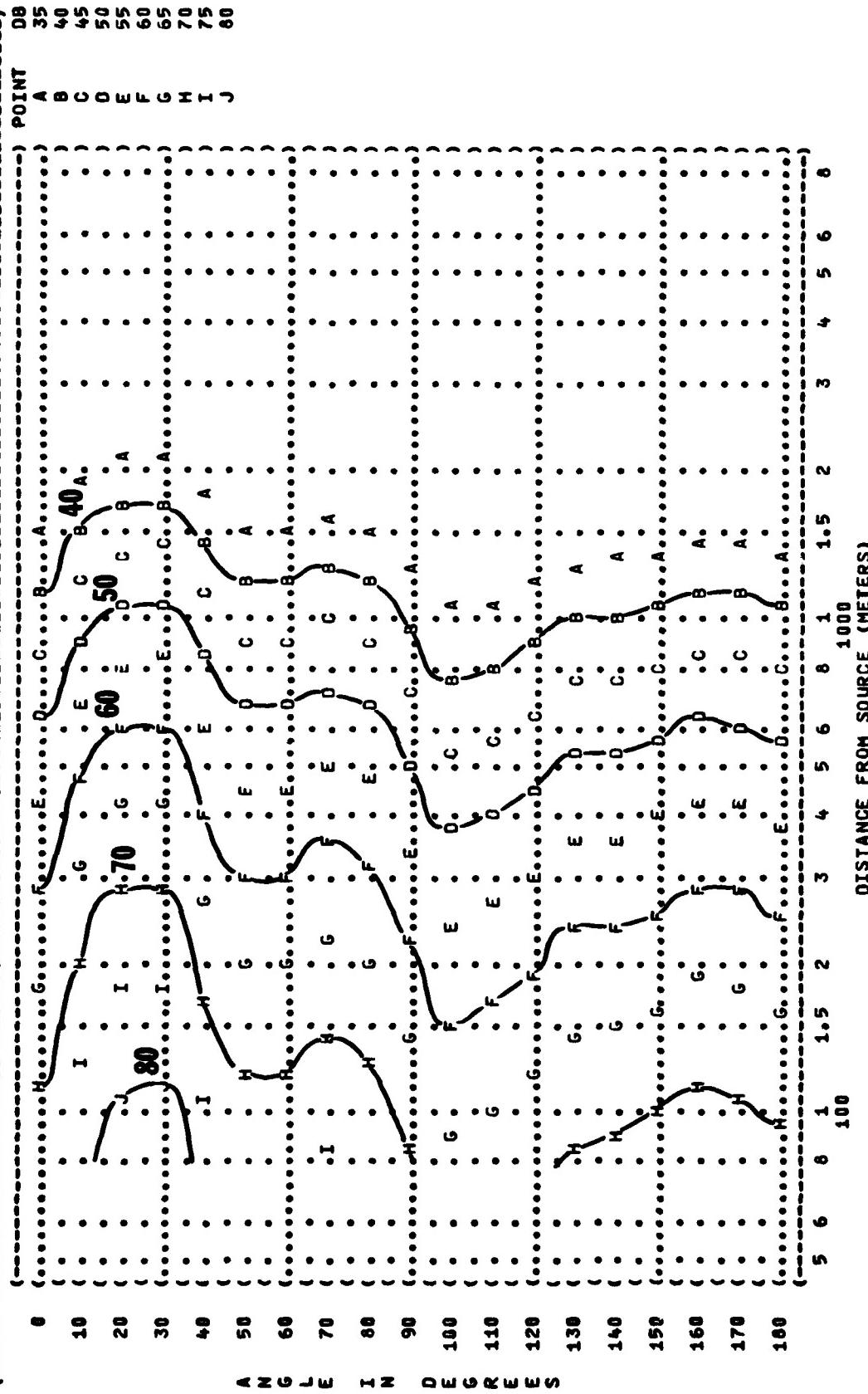


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL OCTAVE BAND
10 4000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-16-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

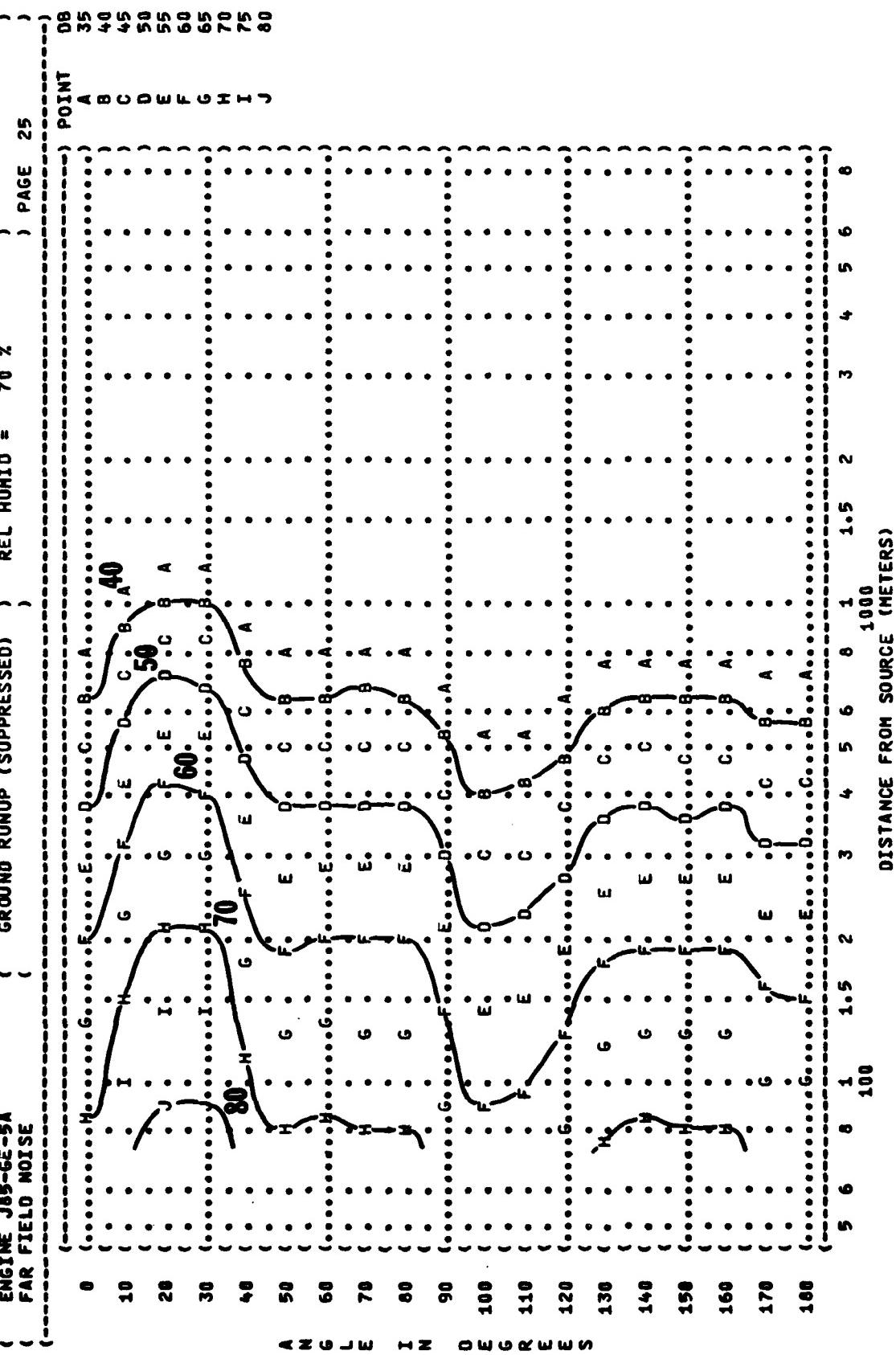
OPERATION:
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:

TEST 77-733-001
RUN 05

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

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DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)
10 EQUAL LEVEL CONTOURS
8000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
T-38 AIRCRAFT IN THE
AF32A-18-SUPPRESSOR
ENGINE J85-GE-5A
FAR FIELD NOISE

OPERATION:
MAX POWER AFTERBURNER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
T=4P = 15 C
PRESS = .760 H HS
REL HUMID = 70 %
TEST 77-733-001
RUN 05
14 SEP 78
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